

## **CITY OF BRIDGEPORT**

### **MS-4 ANNUAL REPORT FOR 2016**

#### **Summary of Progress made for each BMP**

##### **BMP #1      Public Education and Outreach**

A Communication Plan which was part of our CSO LTCP was submitted and approved by DEEP. As part of this plan we developed a billing insert brochure that included MS-4 related information. The brochure was first distributed to all WPCA customers in 2010. Continuing with our program and coordinating with our Contract Operator, the WPCA sent out a second insert to all of the customers in 2016. It was intended to educate the public on sewer management and the WPCA's Long Term Control Plan. The brochures were also distributed to the City's libraries and other public places, and have been posted on the WPCA page of the City's web site. Another brochure has been prepared for distribution to all City employees to involve and educate them on preventing CSOs and minimize the contamination of storm water. This will be emailed to all employees and distributed to the City libraries and other public places and placed on the City web site in the very near future (Attachment 1).

The WPCA has also conducted many tours of our facilities for local schools to educate the students of the importance of protecting Long Island Sound and the environment in general. Currently we are coordinating with three separate schools to tour our facilities in the Spring of 2017.

As previously reported, the City, through a volunteer program completed a catch basin stenciling program alerting the citizens of the need to restrict the discharge of pollutants into catch basins where the flow would eventually lead to Long Island Sound.

The WPCA is preparing another informative brochure specifically targeting storm water issues for distribution in the Spring of 2017. Distribution will be in a similar manner to that previously utilized.

Lastly, the WPCA Board holds monthly meetings which are open to the public and a formal hearing regarding our annual budget is conducted each year.

##### **BMP #2      Public Involvement/Participation**

The WPCA presently has an informal Illicit Discharge Program that has been effective for the past 14 years. See the attached Illicit Discharge Block Diagram for the details of the program (Attachment 2). A draft of a formal ordinance for preventing illicit discharges is presently being reviewed by the City Attorney's Office and should be completed and approved by the WPCA Board and City Council in the Spring of 2017. The WPCA has actively pursued any potential IDDEs. Since the inception of the program in 2002 61 IDDEs have been found and eliminated (Attachment 3).

The Storm Water Management Plan is being prepared to comply with the General Permit for the Discharge of Storm Water from Small Municipal Separate Storm Sewer Systems which takes effect on July 1, 2017. The plan will be placed on the City of Bridgeport web

site and distributed to the libraries and other public areas as well as being available at the WPCA office and the city municipal buildings.

The City has also held many Household Hazardous Waste collection days. The last one was on November 5, 2016 (Attachment 4).

The WPCA continues to comply with all State and local public notice requirements. FOI requests are responded to as promptly as possible.

#### **BMP #3      Illicit Discharge Detection/Elimination**

As stated above, the WPCA is in the process of preparing an ordinance for preventing illicit discharges, which should be completed this fiscal year. The WPCA continues to educate public employees, businesses, and the public on hazards related to illegal discharges through our brochure distribution program, which is ongoing. A brochure regarding storm water issues is being prepared for distribution to all City employees as well as public libraries to educate the public regarding the environmental issues and/or hazards related to illegal discharges. The brochure will be distributed in the Spring of 2017.

All storm water outfalls (>15" owned by the City, >15" located in the city, and >12" in urban areas) have been located and the mapping format is compatible with both the City of Bridgeport's and the CT DEEP's GIS systems.

Our present program to detect and eliminate existing illicit discharges is ongoing and we will continue to address and eliminate future discharges as we have been doing for the past 14 years. The program will be strengthened by the completion and City approval of the new Illicit Discharge Ordinance which will be completed in the Spring of 2017.

#### **BMP #4      Construction Site Storm Water Runoff Control**

Attached is a copy of draft revisions (Attachment 5) to the City's Storm Water Management Manual which is being developed in response to the EPA 308 Audit and requirements of the MS4 Permit which becomes effective on July 1, 2017. If we receive comments from the EPA they will be incorporated and the official Manual will be submitted to the City Council for approval. Prior to approval the City will place the Manual on its web site and advertise the schedule in the local newspaper for approval.

As can be seen in the manual, it addresses many of the items that were addressed in CT DEEP's letter of 27 April 2016 regarding the City's Annual Reports. (City of Bridgeport, DEEP MS4 Permit, Assessment completed 2/2016)

#### **BMP #5      Post-Construction Storm Water Management in New Development/Redevelopment**

Please see Item #4. The Storm Water Management Manual will address runoff, BMPs, enforcement, and long-term maintenance of the BMPs.

## **BMP #6      Pollution Prevention/Good Housekeeping for Municipal Operations**

The WPCA through our Contract Operator provides training to its staff on a regular basis. They have a full time Health and Safety Officer on site and staff must attend all training programs. These include spill prevention, hazardous waste clean-up, reporting requirements for overflows, etc. These programs are ongoing and required by Severn Trent management.

Public Facilities continues to actively sweep all roadway surfaces approximately 6 times a year with additional concentration to those roadways in the more heavily used areas of the downtown.

Catch basins are cleaned once a year as a requirement of the Operator's contract. For the past 14 years all 8500 of the catch basins were cleaned annually. Of course, should an issue with a catch basin arise it is immediately resolved.

MS-4 outfalls are checked and evaluated regularly. As part of the 308 Audit all outfalls have been inspected and where necessary samples have been taken and analyzed. This is an ongoing program that will continue into the future.

Based upon the results of our sewer cleaning and CCTV inspection programs, a listing of sewers requiring repair or replacement and the severity of the condition is generated. In addition to the efforts of our own excavating/replacement crews, the WPCA has, for over 20 years, earmarked an average of nearly \$1,000,000 of our funds for pipe replacement and lining.

The WPCA is also proceeding with project CSO H which involves lining and rehabilitation/replacement of sewers in five additional areas. This project is being funded by DEEP (CWF 621C and CWF 628C) and includes \$2,500,000 for design and \$23,500,000 in Phase 1 and Phase II construction (the total estimated construction cost is \$29,500,000).

CSO H1 Phase A & B – complete

CSO H2 Phase A – complete

CSO H2 Phase B (Bostwick Avenue area) – project rebid and awarded. Preliminary construction activities initiated.

CSO H3 Phase A – complete (including 1286 l.f. of 40" to 60" interceptors)

CSO H4 Phase A Stage 1 – complete

CSO H4 Phase A Stage 2 – complete (including 8287 l.f. of 39" to 66" interceptors)

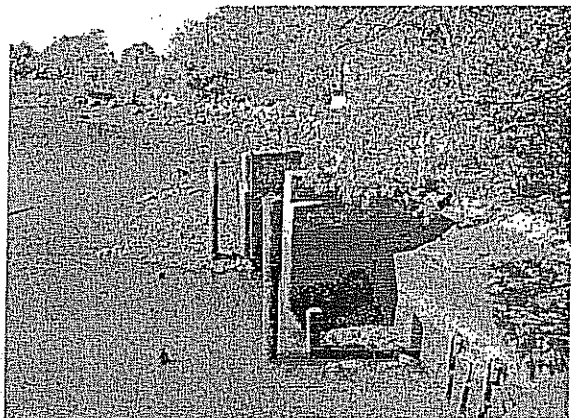
CSO H5 Phase A – complete (including 3418 l.f. of 42" to 54" interceptors)

CSO H6 (no associated Phase B) – 100% complete including 14,200 l.f. of 60" to 66" interceptors)

CSO H7 project designed. To DEEP for authorization to bid. Once received project will be bid. This project includes the lining of all remaining 72" interceptors in our system (approximately 7400 l.f. of 72").

# Attachment 1

# Combined Sewer Overflow Guide for City Employees



*Bridgeport CSO Location*

Portions of the Bridgeport sewer system are over 100 years old. When they were built, a single pipe carried both sewage and storm water. This existing system is called a combined sewer system. During a heavy rainfall or when there is significant snow melt, large volumes of rainwater or melted snow enter the sewers. Instead of overloading the City's wastewater treatment plants, the overflow is discharged directly into waterways at specific permitted combined sewer overflow (CSO) locations in the Bridgeport area.

## How does this impact you?

When there is excessive rainfall, wastewater sometimes overflows into our harbors, rivers, brooks and creeks. These overflows can contain bacteria, raw sewage, and other pollutants which can impact public health, aquatic life, and recreational use of these waters.

## What All City Employees Can Do to Prevent CSOs and Contaminated Stormwater

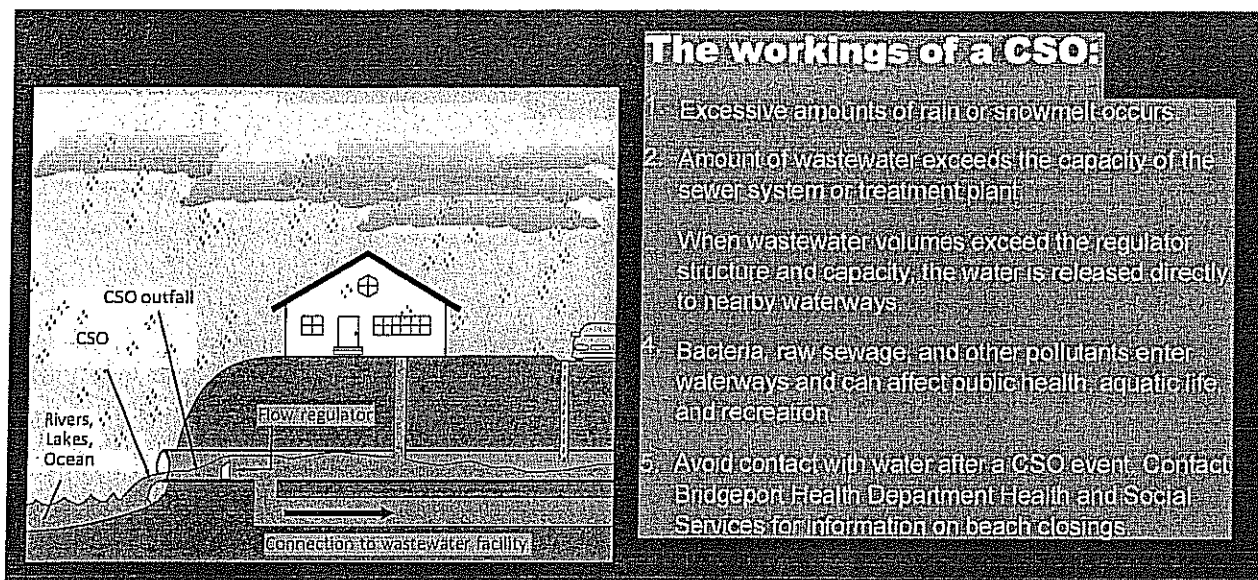
People affect stormwater and CSO discharges! Here are some ways you can help:

- **Conserve water:** Using less water in your office means less flow to the sewer. Remember to turn off the faucet. Report any leaking faucets or running toilets to the appropriate contact in your office or place of work. A slow drip can waste 50 gallons of water per day! Using less water in your office means less water in the sewer system, making overflows during wet weather less likely.
- **Good Housekeeping:** Don't be a litterbug! Proper disposal of waste ensures that it won't make its way into waterbodies. Recycle whenever possible, in line with the City's sustainability initiative.
- **Support local efforts:** Support the efforts of the WPCA and your local government to control CSOs. Understand that there are many ways you can become involved in protecting water quality.
- **Volunteer:** Become involved with the efforts of local groups such as Save the Sound and the Pequonnock River Initiative.
- **If you see something, say something:** Report areas with flooding, clogged storm drains, or garbage to the Public Facilities Administration. Removal of garbage prevents it from entering the sewer system and making its way to waterbodies during storm events.
- **Pay Attention to Signs!** The City of Bridgeport

contact the WPCA.

- **Automotive Care:** Maintain City fleet vehicles in a CSO friendly manner! Wash them at a commercial car wash or City provided facility whenever possible. This will minimize the amount of soapy water conveyed to local waterbodies. Be an advocate of proper disposal of waste! Recycle oil properly, and make sure it doesn't find its way into storm drains.
- **It's our city, we are all in this together!** Lead by example and spread the word. Tell your friends, neighbors, and coworkers what they can do to help.





## What is the Bridgeport WPCA doing to address CSOs?

The Bridgeport WPCA has embarked on a multi-year program that will bring the entire combined sewer system into compliance with federal requirements including implementation of these "nine minimum controls":

- Proper operation and regular maintenance programs for the sewer system and the CSOs
- Maximum use of the collection system for storage
- Review and modification of pre-treatment requirements to assure CSO impacts are minimized
- Maximum flow to wastewater treatment plants for treatment
- Prohibition of CSOs during dry weather
- Control of solid and floatable materials in CSOs
- Pollution prevention
- Public notification to ensure that the public receive adequate notification of CSO occurrences and impacts
- Monitoring to effectively characterize CSO impacts and the effectiveness of CSO controls

The Bridgeport WPCA has already prepared an updated Long-Term Control Plan (LTCP) that identifies specific projects designed to achieve the objectives outlined in these nine minimum controls and reduce the overall occurrence of these CSOs. The LTCP includes the use of green infrastructure to prevent or delay stormwater from entering the system in the first place. Bridgeport is also conducting water quality sampling to collect baseline data which will be used to track our progress.

## Who should you contact?

If a CSO discharge occurs, you are encouraged to contact one of these agencies by phone or by regular mail if you have any questions or concerns about a CSO occurrence:

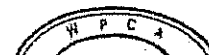
**Connecticut Department of Public Health**  
410 Capitol Avenue  
Hartford, CT 06134  
Phone: (860) 509-8000

**City of Bridgeport**  
Department of Health & Social Services Administration  
City Hall Annex, 999 Broad Street Bridgeport, CT 06604  
Phone: (203) 576-7474

**City of Bridgeport Public Facilities Administration**  
999 Broad Street, 2<sup>nd</sup> Floor  
Bridgeport, CT 06604  
Phone: (203)-576-7130

**Connecticut Department of Energy and Environmental Protection**  
79 Elm Street  
Hartford, CT 06106-5127  
Phone: (860) 424-3000

**City of Bridgeport – Water Pollution Control Authority**  
695 Seaview Avenue  
Bridgeport, CT 06607



# Bridgeport Water Pollution Control Authority's Long-Term Control Plan

## Plan Will Limit Sewer Overflows

The Bridgeport Water Pollution Control Authority (WPCA) has embarked on a multi-year program that will bring its 100-year old combined sanitary and storm water sewer system into compliance with new state and federal requirements.

When the system was built, a single pipe carried both sewage and storm water. During a heavy rainfall or when there is a lot of melted snow, too much water gets into the sewers. Instead of following its intended path to the wastewater treatment plant, the overflow goes directly into local rivers, creeks, and Long Island Sound.

In September 2010 WPCA submitted a Draft Long Term Control Plan to the Connecticut Department of Energy and Environmental Protection (CTDEEP) to reduce the amount of sewer overflows into local waters. This plan was required by the U.S. Environmental Protection Agency and the CTDEEP.

**WPCA Capital Costs for  
Long Term Control Plan Alternatives**

Alternative	Capital Cost
Green Alternatives (includes rain barrels, rain gardens, cisterns, green roofs, porous pavement)*	\$0**
Raising Weirs / Closing Outfalls*	Negligible Cost* (per weir/outfall)
Remote Monitoring System*	\$2.5 Million
Conveyance Tunnel with Treatment	\$425 Million
Underground Storage Tanks	\$550 Million
Full Sewer Separation	\$560 Million
Total Cost of the Comprehensive LTCP Program	\$385 Million

The plan encourages voluntary use (by building owners) of green alternatives to manage their storm water. Green alternatives include installing rain barrels and gardens, cisterns, green roofs and porous pavement surfaces.

The proposed Long-Term Control Plan recommended these improvements:

- Limited separation of combined sanitary and storm water piping
- Raising regulator weirs and closing outfalls (pipes or culverts) that release sewage and storm water into local creeks and rivers during heavy storms
- Underground storage tanks and a conveyance tunnel to treat overflows
- Increased monitoring of sewer overflows and additional water sampling in rivers, creeks, and Long Island Sound
- Increased public communication when sewage overflows occur

It will take at least 30 years to implement all the projects detailed in the Plan.

Hard copies of the Long Term Control Plan are available at the WPCA office, 695 Seaview Avenue, Bridgeport. Discussion of the plan has previously occurred at Bridgeport City Council meetings and will resume in the future.

For more information contact WPCA at (203) 332-5550.



**Water Pollution Control Authority**

695 Seaview Avenue

Bridgeport CT 06607

Phone: (203) 332-5550

\* These alternatives, standing alone, cannot achieve full compliance with CTDEP requirements.

# Plan de Control a Largo Plazo de la Autoridad de Control de Contaminación de Agua de Bridgeport

## Plan Limitará Desbordes de Drenaje

La Autoridad de Control de Contaminación de Agua de Bridgeport (WPCA por sus siglas en inglés) ha emprendido un programa multianual que hará que su sistema combinado de drenaje sanitario y pluvial, que cuentan con más de 100 años de edad, cumpla con los nuevos requisitos estatales y federales.

Cuando el sistema fue construido, una tubería común transportaba ambos tipos de agua (drenaje sanitario y pluvial). Durante un periodo intenso de lluvia o cuando una gran cantidad de nieve se derrite, el exceso de agua o nieve derretida ingresa en las alcantarillas. En lugar de que estas aguas sigan su recorrido hacia la planta de tratamiento de aguas residuales, el desbordamiento se dirige directamente hacia los ríos, arroyos y al estuario de Long Island.

En septiembre del 2010 la WPCA presentó al Departamento de Energía y Protección Ambiental de Connecticut (CTDEEP por sus siglas en inglés) un borrador del Plan de Control a Largo Plazo para reducir la cantidad de desbordes de aguas negras hacia las aguas locales. Este plan fue requerido por la Agencia de Protección Ambiental de los Estados Unidos y el CTDEEP.

El plan fomenta el uso voluntario (por parte de los propietarios de edificios) de alternativas ecológicas para manejar el agua pluvial. Las alternativas ecológicas incluyen la instalación de barriles de lluvia y jardines, cisternas, techos ecológicos y superficies porosas de pavimento.

La propuesta del Plan de Control a Largo Plazo recomendó las siguientes mejoras:

- Separación limitada de tuberías combinadas de drenaje sanitario y pluvial.
- Elevar los vertederos de los reguladores y cerrar los desagües (tuberías o alcantarillas) que desechan aguas negras en los arroyos y ríos locales durante fuertes tormentas
- Tanques de almacenamiento subterráneo y un túnel de transporte para tratar desbordes
- Aumentar la supervisión de desbordes de alcantarillados y realizar muestreos adicionales en ríos, arroyos y en el estuario de Long Island
- Aumentar la comunicación al público cuando los desbordes de alcantarillados ocurran

Se necesitarán por lo menos 30 años para implementar todos los proyectos detallados en el Plan.

Copias del Plan estarán disponibles en las oficinas de la WPCA, 695 Seaview Avenue, Bridgeport. Se han realizado discusiones durante reuniones del Consejo Municipal de Bridgeport y se reanudarán en el futuro.

Para más información contactar WPCA al (203) 332-5550.



**Water Pollution Control Authority**

695 Seaview Avenue

Bridgeport CT 06607

Phone: (203) 332-5550

### Costos de Capital del Plan de Control a Largo Plazo de la WPCA

Alternativa	Costo de Capital
Alternativas Ecológicas (incluye barriles de lluvia, jardines de lluvia, cisternas, techos verdes, pavimento poroso)*	\$0**
Elevamiento de vertederos de reguladores / Cierre de Desagües*	Costo insignificante <sup>+</sup> (costo por vertedero / desagüe)
Sistema de Supervisión Remota*	\$2.5 millones
Túnel de transporte y tratamiento	\$425 millones
Tanques de Almacenamiento Subterráneo	\$550 millones
Separación Completa de Alcantarillados	\$560 millones
Costo Total del Programa Integral de LTCP	\$385 millones

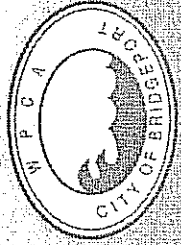
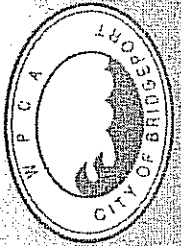
\* Estas alternativas, implementadas individualmente, no cumplen con los

## Is the Bridgeport A doing to address ?

Bridgeport WPCA is embarking on a program that will bring the entire sewer system into compliance with requirements including implementing these "nine minimum controls":

- 1. Operation and regular maintenance of the sewer system and the CSOs
- 2. Use of the collection system for
- 3. Flow and modification of pre-treatment
- 4. Efforts to assure CSO impacts are minimized
- 5. Control of flow to wastewater treatment plants
- 6. Prevention of CSOs during dry weather
- 7. Control of solid and floatable materials in CSOs
- 8. Prevention
- 9. Notification to ensure that the public have adequate notification of CSO
- 10. Prevention and impacts
- 11. Efforts to effectively characterize CSO
- 12. Prevention and the effectiveness of CSO controls

Bridgeport WPCA is in the process of updating an updated Long-Term Control Plan that will identify specific projects designed to meet the objectives outlined in these nine minimum controls.



## Who should you contact?

If a CSO discharge occurs, you are encouraged to contact one of these agencies by phone or by regular mail if you have any questions or concerns about a CSO occurrence:

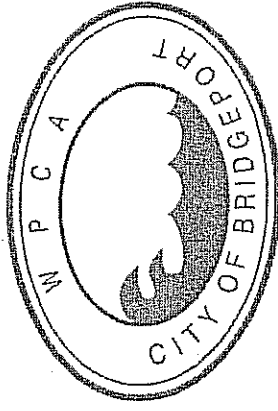
**City of Bridgeport – Water Pollution Control Authority**  
695 Seaview Avenue  
Bridgeport, CT 06607  
Phone: 203-332-5550  
For sewer emergencies, call 203-576-7171

**Connecticut Department of Public Health**  
410 Capitol Avenue  
Hartford, CT 06134  
Phone: (860) 509-8000

**City of Bridgeport  
Department of Health & Social Services  
Administration**  
City Hall Annex, 999 Broad Street  
Bridgeport, CT 06604  
Phone: (203) 576-7474

**Fairfield Health Department**  
Sullivan Independence Hall, 725 Old Post Road  
Fairfield, CT 06824  
Phone: 203-256-3020

**Connecticut Department of Environmental Protection**  
79 Elm Street  
Hartford, CT 06106-5127  
Phone: (860) 424-3000

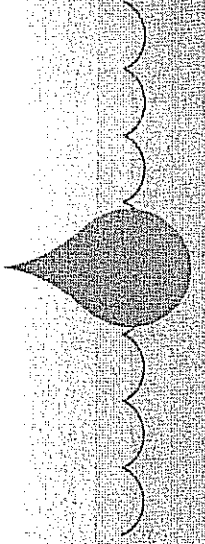


# Greater Bridgeport Combined Sewer Overflow

## A Guide for Residents

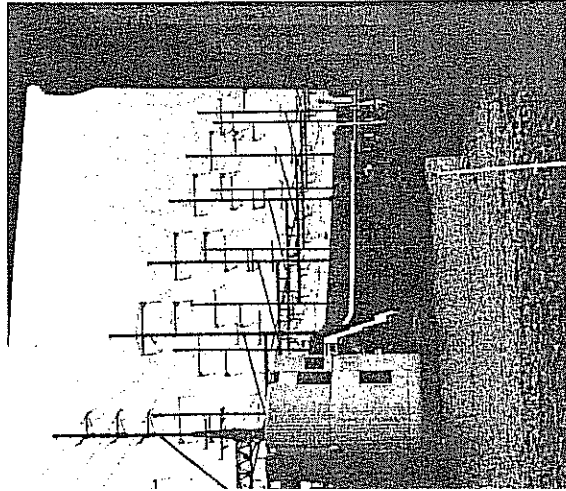
Portions of the Bridgeport sewer system are over 100 years old. When they were built, a single pipe carried both sewage and storm water. This existing system is called a **Combined Sewer Overflow (CSO)** system. During a heavy rainfall or when there is significant snow melt, too much rainwater or melted snow gets into the sewers. Instead of following its intended path to the wastewater treatment plant, the overflow goes directly into waterways in the Greater Bridgeport area.

## How does this affect you?



## Does this impact you?

are is excessive rainfall, wastewater as overflows into harbors, rivers, and creeks in the Greater Bridgeport area overflows can contain bacteria, age, and other pollutants which act public health, aquatic life, and nal use of these waters.



## When do CSOs happen?

In Bridgeport, a combined sewer overflow (CSO) discharge may occur when there is 0.4-inches or more of precipitation. A CSO event may result in discharge of untreated, diluted sanitary wastewater and stormwater directly into the following water bodies:

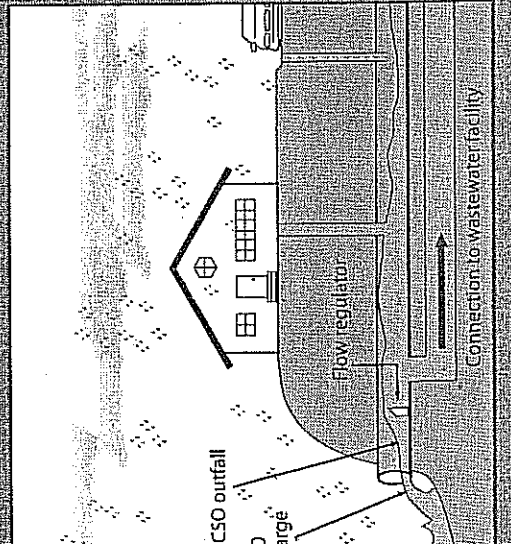
Ash Creek	Johnson's Creek
Bridgeport Harbor	Yellow Mill Pond
Black Rock Harbor	Cedar Creek
Pequonnock River	Burr Creek
	Island Brook

## What should you do when a CSO event occurs?

To avoid the possibility of health problems, it is important that the public avoid contact with these waters after any CSO discharge. Contact Bridgeport Health Department Health and Social Services for information on beach closings.

## The workings of a CSO:

1. Excessive amounts of rain or snowmelt occurs.
2. Amount of wastewater exceeds the capacity of the sewer system or treatment plant.
3. When wastewater volumes exceed the regulator structure and capacity the water is released directly to nearby waterways.
4. Bacteria, raw sewage, and other pollutants enter waterways and can affect public health, aquatic life, and recreation.
5. Avoid contact with water after a CSO event. Contact Bridgeport Health Department Health and Social Services for information on beach closings.

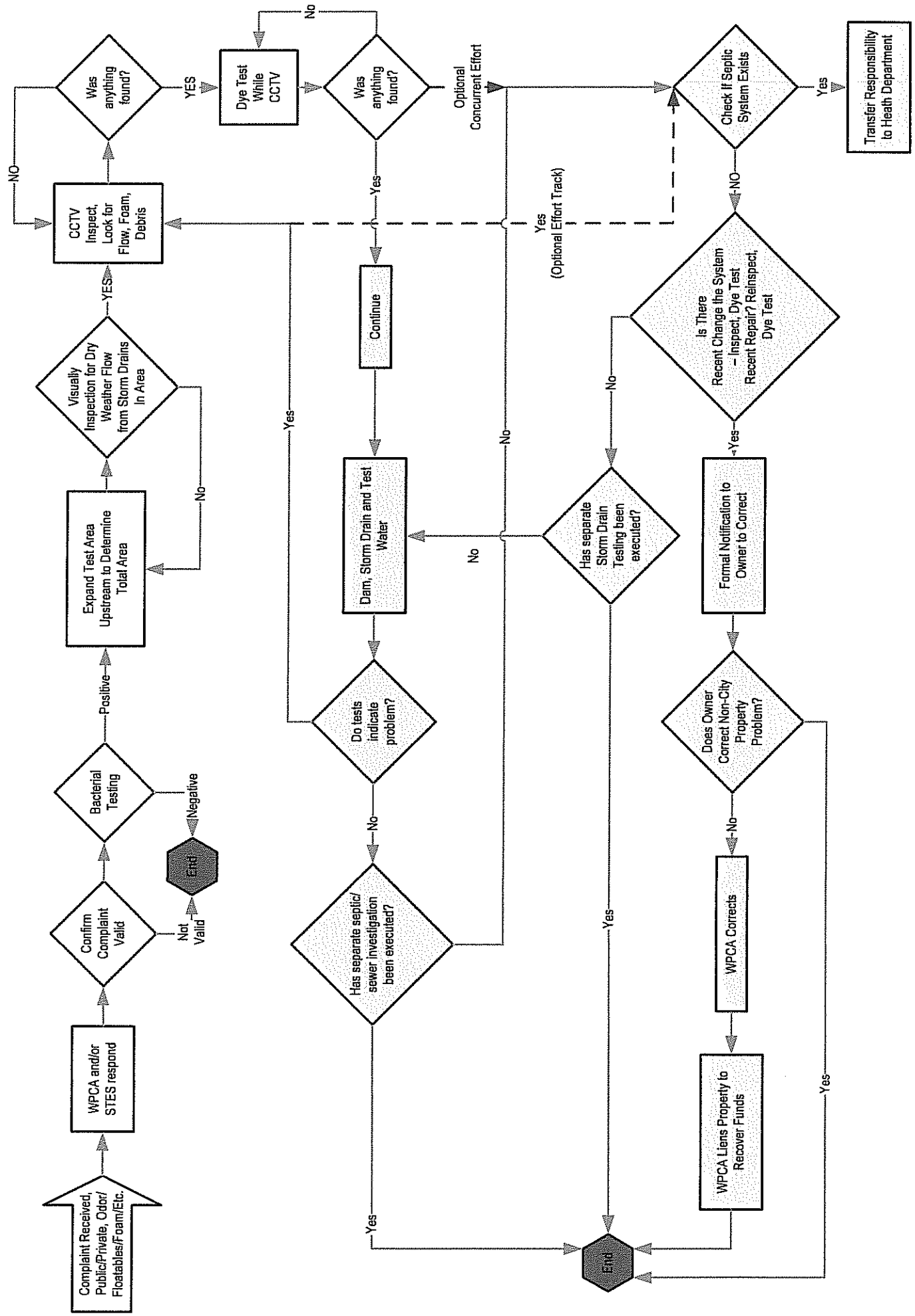


## What can you do to prevent CSOs and contaminated stormwater?

- **Reduce impervious surfaces:** Surfaces such as roofs, driveways, and concrete patios do not allow rainwater to filter back into the soil, forcing the water into storm drains. Instead of concrete patios, asphalt driveways, and paved paths, try wood decks, gravel or pervious asphalt driveways, and mulched paths. Disconnect roof leaders wherever permissible by ordinance.
- **Install rain barrels:** Water collected in a rain barrel would normally flow from your roof's gutter spouts and end up as stormwater runoff. Collected water may be used to water lawn or gardens.
- **Practice responsible lawn care:** When applying chemicals to your lawn, follow the manufacturer's directions to avoid over-applying. These chemicals can runoff into the sewer system and degrade our rivers.
- **Conserve water:** Using less water on your lawn and garden means less chemical runoff into storm drains. Using less water in your home means less water in the sewer system, making overflows during wet weather less likely.
- **Don't misuse storm drains:** Remember that storm drains are not trash cans. Solid or household hazardous waste (HHW) such as motor oil, anti-freeze, and many cleaning agents should be disposed of properly at a HHW collection facility.
- **Support local efforts:** Support the efforts of the WPCA and your local government to control CSOs. Understand that there are many ways you can become involved in protecting water quality.

## Attachment 2

# Illicit Discharge Block Diagram



## Attachment 3

ILLICIT DISCHARGE DETECTION AND ELIMINATION (IDDE)  
CONNECTIONS ELIMINATED 2002 - 2009

2002	1114	185 Dover Street
2005	0831	146 Woodmont Avenue
2005	0912	212 Pierce Place
2005	0927	155 Woodmont Avenue
2005	1027	80 Lorraine Street
2005	1027	120 Lorraine Street
2005	1027	1840 Park Avenue
2007	0720	1673 Barnum Avenue
2007	0720	1728 Barnum Avenue
2007	0720	1892 Boston Avenue
2007	0720	1900-04 Boston Avenue
2007	0720	103 Clermont Avenue
2007	0720	1844-46 Barnum Avenue
2007	0723	226 Cleveland Avenue
2007	0723	404 McKinley Avenue
2007	0730	259 Taft Avenue
2007	0730	296 Taft Avenue
2007	0730	385 Taft Avenue
2007	0730	1590-92 Barnum Avenue
2007	0817	2240 Park Avenue
2007	0820	1611 Barnum Avenue
2007	0907	618 West Jackson Avenue
2008	0708	4355 Main Street
2009	1005	610 Cleveland Avenue

ILLICIT DISCHARGE DETECTION AND ELIMINATION (IDDE)  
CONNECTIONS ELIMINATED SINCE 2010

2010	0317	1504 Barnum Avenue	
2010	0317	1722-1724A Barnum Avenue	
2010	0317	1722-1724B Barnum Avenue	
2010	0317	1722-1724D Barnum Avenue	
2010	0317	1728 Barnum Avenue	
2010	0317	1812 Barnum Avenue	pawn shop
2010	0317	1812 Barnum Avenue	apt. bldg.
2010	0525	118 Bond Street	
2010	0525	1503 Boston Avenue	
2010	0525	34 Dover Street	
2010	0525	37 Dover Street	
2010	0525	59-61 Dover Street	
2010	0515	383 Dover Street	
2010	0525	208 Willow Street	
2010	0525	319 Willow Street	
2010	0601	1690 Barnum Avenue	chicken
2010	0726	145 Lansing Street	
2010	1019	56 Springdale Street	
2010	1104	125 Springdale Street	
2010	1104	85 Wilcox Street	
2010	1104	Hunting Street (former St. V's Nursing School)	
2010	1104	118 Hawley Avenue	
2010	1104	128 Hawley Avenue	
2010	1104	983-85 Lindley Street	
2010	1104	1031-33 Lindley Street	
2010	1118	290 Summit Street	
2010	1124	191-193 Hawley Avenue	
2010		1892 Boston Avenue	
2013	0315	92 Howard Avenue	
2014		235 Hawley Avenue	
2014		291 Main Street	
2014		303 Main Street	
2014		319-321 Main Street	
2014		100 Atlantic Street	
2015	0910	160 Holland Avenue	
2016		2253 Fairfield Avenue	U S Postal Service
2016		1455 Boston Avenue	Rub A Dub Dub Laundromat

## Attachment 4

# Saturday, November 5, 2016

## HOUSEHOLD HAZARDOUS WASTE COLLECTION DAY

9:00 am to 1:00 pm

Blackham School, 425 Thorne Street, Bridgeport, CT 06606

The City of Bridgeport will hold its Household Hazardous Waste Collection Day FREE to all Bridgeport Residents



Your home could be filled with household hazardous waste. Rid your home of these hazardous waste materials without damaging the environment! These materials include oil-based paints, antifreeze, gasoline, cleaning solvents and other potentially hazardous liquids and electronic waste – laptops, computers, monitors, television, VCRs and DVD players.

### WHAT TO BRING:

Listed below are common household hazardous waste which can be brought to the collection point. This list is not all-encompassing. There are many other similar items in your which are hazardous...

#### GARAGE & WORKSHOP

- Antifreeze
- Batteries (household)
- Brake Fluid
- Gasoline
- Oil-Based Paint
- Paint-Stripper/Thinners
- Transmission Fluid
- Turpentine

#### KITCHEN

- Aerosols (unfinished)
- Disinfectants
- Drain Cleaners
- Floor Care Products
- Oven Cleaners
- Polishers
- Spot & Stain Removers
- Wood Preservatives

#### YARD & HOBBY

- Adhesives
- Artist's Paints
- Charcoal Lighter Fluid
- Cleaning Solvents
- Epoxy Products
- Fungicides
- Glues
- Herbicides & Insecticides
- Kerosene
- Moth Balls
- Pool Chemicals

#### ELECTRONICS

- Laptops
- Computers
- Monitors
- TV's
- VCRs/DVD Players

### WHAT NOT TO BRING:

- Ammunition – Call your local Police Department
- Biological Waste – Hire a contractor to dispose of property
- Explosives – Try calling your local Police/Fire Department
- Fire Extinguishers – Try calling your local Police/Fire Department
- Flares – Try calling your local Police/Fire Department
- Needles/Syringes – Put in a Sharp Container or heavy plastic container or closed coffee can and then regular trash
- Medicine/Drugs – Try calling your local hospital or walk-in clinic
- Tires – Call Public Facilities for disposal instruction

### RULES FOR BRINGING WASTE TO A COLLECTION

- Bring your waste items in their original containers whenever possible
- Do not mix different products
- Stay in your vehicle. We will handle everything for you
- No smoking in your car with flammable waste!
- Wait time is 5 to 15 minutes
- If possible, leave children and animals at home

For more information, contact Dennis Scinto @ 203-576-7795 or [dennis.scinto@bridgeportct.gov](mailto:dennis.scinto@bridgeportct.gov).

Household Hazardous Waste Day is sponsored by the City of Bridgeport & Mayor Joseph P. Ganim

# SATURDAY, OCT 25, 2014

## 9:00 AM TO 1:00 PM

### Blackham School-Thorne Street



**The City of Bridgeport  
will hold its  
Household Hazardous Waste  
Collection Day  
FREE  
to all Bridgeport Residents.**

Your home could be filled with household hazardous waste. Rid your home of these Hazardous Waste materials without damaging the environment. These materials include oil based paints, antifreeze, gasoline, cleaning solvents and other potentially hazardous liquids and electronic waste (laptops, computers, monitors, televisions and VCRs).

## What to Bring:

### Common Household Hazardous Waste

Listed below are common household hazardous waste which can be brought to the collection point. This list is not all encompassing. There are many other similar items in your home which are hazardous.

#### Garage and Workshop

Antifreeze  
Batteries (household)  
Brake Fluid  
Gasoline  
Oil Based Paint  
Paint Stripper/Thinners  
Transmission Fluid  
Turpentine

Also: PC's, Electronics

#### Kitchen

Aerosols (unfinished)  
Ammonia  
Disinfectants  
Drain Cleaners  
Floor Care Products  
Oven Cleaners  
Polishers  
Spot and Stain Removers  
Wood Preservatives

#### Yard and Hobby

Adhesives  
Artist's Paints  
Charcoal Lighter Fluid  
Cleaning Solvents  
Epoxy Products  
Fungicides  
Glues  
Herbicides  
Insecticides  
Kerosene  
Moth Balls  
Pool Chemicals

## What NOT to Bring:

**Ammunition-** try calling your local

Police Department

**Biological Waste-** hire a contractor to dispose of property

**Explosives-** try calling your local Police Department

**Fire Extinguishers-** try calling your local Police Department

**Flares-** try calling your local

Police/Fire Department

**Needles/Syringes-** put in a Sharp Container or heavy plastic container then into regular trash

**Medicine/Drugs-** try calling your local Hospital or walk-in clinic

**Tires-** call the Public Works Department in your town for Disposal instructions

## RULES FOR BRINGING WASTE TO A COLLECTION

- Bring your waste items in their original containers whenever possible
- Do not mix different products
- Stay in your vehicle. We will handle everything for you.

- No smoking in your car. Wastes are flammable
- Bring something to read. The wait is usually 5-15 minutes
- If possible, leave children and animals at home

Household Hazard Waste Day is a component of  
**Mayor Bill Finch's Project Clean Sweep**

For more information call Dennis Smith at 576 8000



## Attachment 5

**City of Bridgeport**  
**Connecticut**  
**Department of Public Facilities**  
**Storm Water Management Manual**



**Adopted April 6, 2009**  
**Revised September 2, 2016**

**ADDENDUM ONE FOR THE CITY OF BRIDGEPORT**  
**STORM WATER MANAGEMENT MANUAL**  
**ALL CHANGES TO THE MANUAL ARE SHOWN IN RED**

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EXHIBITS  
(In map pocket)

Exhibit 8-1: Combined Sewer System Areas of Concern from *Facility Plan 2000 Report*

Exhibit 8-2: Flood Prone Areas

Exhibit 12-1: Flood Hazard Zone

The Bridgeport City Council approved Public Ordinance Chapter 15.48, Storm Water Management Manual on April 6, 2009.

The Ordinance allows for the creation of a comprehensive storm water management program in Bridgeport. The Ordinance places the responsibility for citywide storm water management under the supervision of the Engineering Department. The Ordinance requires the Engineering Department to develop this storm Water Management Manual. The manual presents the framework of the storm water management program, including its mission, goals, program elements and implementation phases.

# 1. DEFINITIONS

**Applicant:** Any person, company, or agency that applies for a permit through the City of Bridgeport.

**Bioretention Facility:** A facility that utilizes soils and both woody and herbaceous plants to remove pollutants from storm water runoff. Examples of bioretention facilities in this manual can include vegetated swales, flow-through and infiltration planters, vegetated filters, and vegetated infiltration basins.

**Buffer:** The area of land immediately adjacent to any surface water body measured perpendicular to and horizontally from the top-of-bank on both sides of a stream that must remain or be restored with native plants, trees, and shrubs.

**Capacity:** The capacity of a storm water drainage system is the volume or rate that a facility (e.g., pipe, pond, vault, swale, ditch, drywell, etc.) is designed to safely contain, receive, convey, reduce pollutants from or infiltrate storm water to meet a specific performance standard. There are different performance standards for pollution reduction, flow control, conveyance, and destination/ disposal, depending on location.

**Catch Basin:** A structural facility located substantially below the ground surface, used to collect storm water runoff for conveyance purposes. Generally located in streets and parking lots, catch basins have grated tops, allowing storm water from the surface to pass through for collection. Catch basins also include a 2 foot sumped bottom.

**Catch Basin – Hooded:** Catch basins also include a submerged outlet pipe (downturned 90 degree elbow, hood, or baffle board) to trap floatables, and gases when discharging to a combined sewer when sealed.

**City –** City of Bridgeport

**Combined (or Combination) Sewers:** Pipes that convey both sanitary sewage and storm water.

**CSO (Combined Sewer Overflow):** A discharge of a mixture of sanitary sewage and storm water at a point in the combination sewer system designed to relieve surcharging flows.

**Department:** City of Bridgeport, Department of Public Facilities.

**Design Professional:** A licensed professional engineer registered in the State of Connecticut.

**Design Storm:** The magnitude and temporal (temporary) distribution of precipitation from a storm event measured in probability of occurrence (e.g., five-year storm) and duration (e.g., 24 hours), used in the design and evaluation of storm water management systems.

**Detention Facility:** A facility designed to receive and hold storm water and release it at a slower rate, usually over a number of hours. The full volume of storm water that enters the facility is eventually released.

**Developer:** Any landowner, agent of such landowner, or tenant with the permission of such landowner, who makes or causes to be made a subdivision of land or land development project.

**Development Footprint:** To area of the building footprint, hardscape, access roads and parking.

**Development Project:** Any human-induced change to improved or unimproved real estate, whether public or private, including but not limited to land development, construction, installation, or expansion of a building or other structure, land division, street construction, and site alteration such as embankments, dredging, grubbing, grading, paving, parking or storage facilities, excavation, filling, stockpiling, or clearing. As used in these regulations, development encompasses both new development and redevelopment. It includes the entire development site, even when the project is performed in stages or only on a limited portion of the site.

**Development Site:** The specific tract of land where any earth disturbance activities are planned, conducted, or maintained by a developer.

**Directly Connected Impervious Area (DCIA):** An impervious or impermeable surface, which is directly connected to the drainage system.

**Drywell Systems:** Facilities which utilize subsurface storage and/or percolation for storm water runoff.

**Easement:** An acquired right to cross or use another's property for a specific defined purpose, noted and recorded on City land records.

**Earth Disturbance:** Any human activity which moves or changes the surface of land, including, but not limited to, clearing and grubbing, grading, excavation, embankments, land development, agricultural plowing or tilling, road maintenance activities, and the moving, depositing, stockpiling, or storing of soil, rock or earth materials.

**Ecoroof:** A lightweight low-maintenance vegetated roof system used in place of a conventional roof. Ecoroofs provide storm water management by capturing, filtering, and evaporating rainfall.

**Erosion and Sediment Control Plan:** A plan for a project site that identifies storm water detention and retention structures that will minimize accelerated erosion and sedimentation during the construction phase, and is in accordance with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.

**Existing Conditions:** Physical conditions on the site including land use, impervious surface, topography, vegetation, soils, and hydrology that exist on the site on the date the Developer starts the development process.

**Extended Wet Detention Pond:** A surface vegetated basin with a permanent pool of water and additional storage volume, used to provide pollution reduction and flow control for a particular drainage basin. The permanent pool of water provides a storage volume for pollutants to settle out. During large storm events, storm water temporarily fills the additional storage volume by as much as three feet and return gradually to pre-storm elevations within 24 hours of the storm event.

**Flood Prone Areas:** Areas in the City where flooding may be caused by inadequate sewer capacity or stream bank overflow.

**Groundwater Recharge:** The replenishment of existing natural underground water supplies without degrading groundwater quality.

**Hotspots:** Areas where land use or activities have contaminated the soil underlying the site such that infiltration of storm water would likely cause groundwater contamination through leaching of the soil's contaminants.

**Impervious Surface:** A surface that prevents the infiltration of water into the ground. Examples of impervious surface include roofs, streets, sidewalks, and parking or driveway areas that are covered with impervious paving materials such as asphalt or concrete.

**Infiltration:** The percolation of water into the ground.

**Level Spreader:** Storm water outlet control that spreads out concentrated flow and releases it as a low velocity, non-erosive diffused flow.

**Maximum Extent Practical:** A goal for Developers to utilize all storm management design practices available and feasible on the project site.

**National Flood Insurance Program (NFIP):** A federal program to make flood insurance to businesses and residents available within communities adhering to minimum state and federal floodplain management standards. The NFIP is administered by the Federal Emergency Management Agency (FEMA)

**Open Channel:** A fluid passageway which allows part of the fluid to be exposed to the atmosphere (i.e. U-shaped channel).

**Owner:** Any person, landowner, corporation or other legal entity recognized by the State of Connecticut who holds legal title to property.

**Peak Flow:** The peak flow, sometimes called the peak discharge, is the maximum rate of flow of water passing a given point as a result of a rainfall event or the maximum discharge on a runoff hydrograph.

**Pervious Pavement:** Types of pavement systems that allow storm water to percolate through them and into subsurface drainage systems or the ground.

**Post-Developed Condition:** A site's ground cover and grading after development.

**Predevelopment Condition:** The predevelopment condition shall be the existing condition of the site immediately prior to implementation of the approved development plan. For redevelopment, predevelopment shall be defined according to the procedures found in Section 5.B.

**Rainwater Harvesting:** The practice of collecting and using storm water for purposes such as irrigation and toilet flushing.

**Redevelopment:** Any development on a site that requires demolition or removal of existing structures or impervious surfaces and replacement with new impervious surfaces. Maintenance activities such

as top-layer grinding and re-paving are not considered redevelopment. Interior remodeling projects are also not considered redevelopment.

**Retention Facilities:** A facility that permanently retains storm water on-site, where it infiltrates and recharges the groundwater aquifer, or in the case of surface retention facilities, evaporates or is absorbed and used by surrounding vegetation. In this way, retention facilities reduce the total volume of water released downstream. Examples of retention facilities include surface treatments (such as eco-roofs or pervious pavements) that cover or replace traditional impervious surfaces. Other examples include vegetated facilities such as swales, filters, ponds, and planter boxes.

**Roof Garden (a.k.a. Green Roof):** A heavyweight roof system of waterproofing material with a thick soil and vegetation cover. Roof gardens provide storm water management by capturing, filtering, and evaporating rainfall.

**Runoff:** storm water that flows across the ground surface during and after a rainfall event.

**Site Design Credits:** Credits that act as an incentive to developers to implement better site design and low impact development techniques that can reduce the volume of storm water runoff, preserve natural areas, and minimize the pollutant loads from the site. These credits allow developers to reduce or eliminate design requirements for water quantity, water quality, channel protection and flood control.

**Storm water:** Water that originates as precipitation on a particular site, basin, or watershed.

**Storm water management:** The overall combination of techniques used to reduce pollutants from, detain and/or retain, and provide a destination for storm water to best preserve or mimic the natural hydrologic cycle, to accomplish goals of reducing and controlling storm water runoff, or to fit within the capacity of existing infrastructure.

**Water Quality Volume:** The amount of storm water runoff from any given storm that should be captured and treated in order to remove a majority of storm water pollutants as specified in the CT DEP SWQM, Chapter 7.

**Watercourse:** A channel in which a flow of water occurs, either continuously or intermittently, with some degree of regularity. Watercourses may be either natural or man-made.

**Wet Pond:** A vegetated basin with a permanent pool of water, used to provide pollution reduction for a particular drainage basin. The permanent pool of water provides a storage volume for pollutants to settle out.

**Wetland:** An area that is inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands include swamps, marshes, bogs, and areas mapped by a licensed Connecticut Soil Scientist. Specific wetland designations shall be made according to both State of Connecticut and US Army Corps of Engineers requirements.

## **2. ABBREVIATIONS & ACRONYMS**

**BMP** – Best Management Practices  
**CSO** – Combined Sewer Overflow  
**CTDEP** – Connecticut Department of Environmental Protection  
**CTDEPSWQM** – CTDEP Storm water Quality Manual  
**CTDOT** – Connecticut Department of Transportation  
**CTDOTDM** – CTDOT 2000 Drainage Manual  
**CTGSESC** – CTDEP 2002 Connecticut Guidelines for Soil Erosion and Sediment Control  
**DCIA** – Directly Connected Impervious Area  
**DPF** – Department of Public Facilities, City of Bridgeport  
**E & S** – Erosion and Sediment  
**FEMA** – Federal Emergency Management Agency  
**FIRM** – Flood Insurance Rate Map  
**FIS** – Flood Insurance Study  
**GIS** – Geographic Information System  
**NPDES** – National Pollutant Discharge Elimination System  
**NRCS** – National Resources Conservation Service (formerly SCS)  
**SCS** – Soil Conservation Service (now referred to as the NRCS)  
**SWCIP** – Storm water Capital Improvement Plan  
**USDA** United States Department of Agriculture  
**USACOE** – United State Army Corps of Engineers  
**WPCA** – Water Pollution Control Authority  
**WQV** – Water Quality Volume

### 3. RELATED DOCUMENTS AND WEBSITES

#### State of Connecticut Department of Transportation

1. Standards Specification for Roads, Bridges and Incidental Construction, Form 816, or as amended. <http://www.ct.gov/dot/cwp/view.asp?a=1385&q=305506>
2. 2000 Drainage Manual, as amended.  
<http://www.ct.gov/dot/cwp/view.asp?a=1385&Q=260116&dotPNavCtr=1#40139>
3. Standard Details shall be incorporated into this manual, except as revised and modified herein. <http://www.ct.gov/dot/cwp/view.asp?a=2288&q=259352>
4. Qualified product list. [http://www.ct.gov/dot/lib/dot/documents/dresearch/conndot\\_gpl.pdf](http://www.ct.gov/dot/lib/dot/documents/dresearch/conndot_gpl.pdf)

#### State of Connecticut Department of Environmental Protection

1. 2004 Connecticut Storm Water Quality Manual, as amended.  
[http://www.ct.gov/dep/cwp/view.asp?a=2721&q=325704&depNav\\_GID=1654](http://www.ct.gov/dep/cwp/view.asp?a=2721&q=325704&depNav_GID=1654)
2. 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended  
[http://www.ct.gov/dep/cwp/view.asp?a=2720&q=325660&depNav\\_GID=1654](http://www.ct.gov/dep/cwp/view.asp?a=2720&q=325660&depNav_GID=1654)

#### University of Connecticut (UCONN)

1. **NEMO (Nonpoint Education for Municipal Officials)** is a University of Connecticut program for local land use officials addressing the relationship of land use to natural resource protection.  
<http://nemo.uconn.edu/index.htm>
2. The Map and Geographic Information Center (MAGIC), is the University of Connecticut's Map Library. Collect maps, atlases, gazetteers, aerial photographs, and digital geospatial data, as well as resources on the history and current state of mapping.  
<http://magic.lib.uconn.edu/>

#### City/State/Federal Government

1. City of Bridgeport  
<http://ci.bridgeport.ct.us/>
2. Bridgeport Enterprise GIS System  
[www.ci.bridgeport.ct.us/gis](http://www.ci.bridgeport.ct.us/gis)
3. State of Connecticut  
<http://www.ct.gov/>
4. FEMA Map Service Center to purchase or view flood studies and maps.  
<http://msc.fema.gov/webapp/wcs/stores/servlet/FemaWelcomeView?storeId=10001&catalogId=10001&langId=-1>
5. USDA Natural Resource Conservation Commission Web Soil Survey  
<http://websoilsurvey.nrcs.usda.gov/app/>
6. Facility Plan 2000 Report Water Pollution Control Authority of Bridgeport, Connecticut.
7. Storm Water Improvements and Flood Control Report

**ADDENDUM ONE FOR THE CITY OF BRIDGEPORT**  
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Title Sheet

Added revision date of September 2, 2016

Table of Contents

Revised Contents with new and added contents: - 6,8,11

## **4. INTRODUCTION**

The purpose of this design manual is to provide standards to be used to prepare plans that will be reviewed within the Subdivision Regulations, Zoning Regulations and the Inland Wetland-Watercourse Regulations.

The standards found herein are requirements that are to be used to reach the application and permit stage. Every site has its own unique characteristics and must be prepared and dealt with on its own merits and there can be no substitute for an exchange of information with City staff to insure all concerns have been addressed.

The manual gives design minimums and maximums, formulas, details, procedures and other information. In the event a situation occurs that is not covered within this manual, the designer is advised to first receive approval from the City Engineer concerning the acceptance of a particular procedure, formula or design.

## **5. OVERVIEW OF THE REGULATIONS**

All projects including new construction, projects adding more than 200 square feet of impervious surfaces, and which generate earth disturbance of 20,000 square feet or more (5,000 sq ft or more in flood prone areas) must comply to the greatest extent practical with the requirements of the Storm Water Management Regulations. There are four major elements to the Bridgeport Storm Water Regulations: Water Quality, Water Quantity, Channel Protection, and Flood Control Requirements. Water Quantity & Quality shall adhere to the maximum extent practicable treatment standards.

Maximum Extent Practicable (MEP) as defined by Environmental Protection Agency (EPA) is "to reduce and/or eliminate to the extent achievable using control measures that are technologically available and economically practicable and achievable in light of best industry practices."

The flood insurance study for the City of Bridgeport has designated areas as Zone A, areas inundated by a 100-year flood and Zone V, areas of 100-year coastal flood with velocity (wave action).

### **A. Water Quality Requirements**

The Water Quality Requirement concerns the first one inch of precipitation over Directly Connected Impervious Areas from each storm and is established to: (1) recharge the groundwater table and increase stream base flows; and (2) reduce contaminated runoff from sites as well as to improve water quality discharge into Long Island Sound.

1) The management technique required is infiltration unless infiltration is determined to be physically impossible (due to contamination, high groundwater table, shallow bed rock, poor infiltration rates) or where it can be shown that doing so would cause property or environmental damage.

2) Where infiltration is not feasible for the entire inch, any remaining portion of the initial inch of precipitation from a storm that cannot be infiltrated must be treated for water quality using the secondary treatment practices found in the CTDEPSWQM.

#### B. Water Quantity Requirements

The City of Bridgeport's goal is to protect existing and new development by minimizing the increase of storm water runoff volume beyond that experienced under predevelopment conditions and by reducing peak storm water flows.

At a minimum, flow control (detention) shall be sufficient to reduce runoff volume and peak flow rates to 10% less than their pre-development levels for required storm frequencies, 24-hour runoff events. Note that for redevelopment projects, pre-development condition is determined as follows:

Redevelopment projects have two options in determining impervious area under pre-development conditions:

1. Use the Existing Conditions, which are the conditions on the site on the day that the Developer starts the development process.
2. Determine historical imperviousness for site by conducting a review of aerial photos and other acceptable methods of interpreting impervious coverage as far back as 1970. The greatest percent impervious coverage since 1970 may be used for the pre-development condition when calculating flood controls. The developer is responsible for providing the City with legible and acceptable documentation historical site impervious coverage used in the project design.

#### C. Channel Protection Requirements

The Channel Protection Requirement is established to: (1) protect the quality of stream channels and banks, fish habitat, and man-made infrastructure from the influences of high stream velocity erosive forces and (2) prevent filling of embankments and promote widening of existing channels to historical widths. The requirement applies equally to natural and man-made watercourses, and also to sites discharging to drainage ditches, natural or man-made ponds, direct discharge and storm lines if those systems ultimately discharge to previously listed receiving waters. However, the Channel Protection Requirement does not apply to sites directly discharging to tidal waters.

All developments and redevelopments, subject to these regulations, shall provide the City's Department of Public Facilities, with a "Right of Access" or access easement where deemed necessary by the Department. An access easement shall be a minimum of 15 feet beyond the top of bank on both sides of the watercourse or as defined by the Engineering Department in lieu of defined bearings and distances.

#### D. Flood Control Requirement in Flood Prone Areas

The Flood Control Requirement is established to: (1) reduce or prevent the occurrence of flooding in areas noted on Exhibit 8-2, as may be caused by inadequate storm line capacity or stream bank overflow and (2) to reduce the frequency, duration and quantity of overflows in combined sewer sheds.

The Flood Control Requirement is based upon ongoing watershed wide planning studies determining flood management districts for controlling peak rates of runoff. As a minimum, a development project is required to reduce runoff volume and peak flow rates of the post-development by 10% in comparison to pre-development conditions for storm frequencies noted in Section 7. As planning programs are completed for Bridgeport's watersheds, new Flood Control Districts will be listed in the manual which will more accurately reflect the level of flood protection needed in localized settings.

## 6. WATER QUALITY CONTROLS

A. All storm water management practices shall be designed according to the Best Management Practices (BMP) to capture and treat storm water runoff. The Best Management Practices should be selected according to the specifications outlined in CTDEP 2004 Connecticut Storm Water Quality Manual to meet the maximum extent practicable treatment standards.

In order to achieve the maximum extent practicable treatment standards all storm water management practices shall be designed and selected that are most effective at treating pollutants and reduction in flow velocities.

Some of the BMP measures shall include but not be limited to:

1. Maximizing flow paths from inflow points to outflow points of basins, pools and ponds.
2. Protection of inlet and outfall structures.
3. Elimination of erosive flow velocities.

The basic design concept for flow control (detention and retention) is simple: water from developed areas is managed with a variety of flow control techniques and released to downstream conveyance systems at a slower rate (detention) and lower volume (retention). Managing flows in this way attempts to mimic the site's natural rainfall runoff response prior to development.

(The above paragraph moved from the City's Policy Section)

### A. Overflow Requirement Criteria

Flow control is intended to protect downstream properties, infrastructure, and natural resources from the increases in storm water runoff peak flow rates and volumes resulting from development. Storm water runoff from almost all the developed areas of the City, whether served by separate storm water sewers or combined sewers, is causing impairment to the aquatic and riparian habitats of streams and rivers in Bridgeport. These water bodies are suffering from streambank and channel erosion resulting in the exposure of sewer infrastructure and decreased stream baseflow due to reduced groundwater recharge. The streams do not support healthy aquatic communities, do not meet uses designated by the State, do not serve as amenities to the community, and occasionally cause property damage due to flooding.

The City's policy is to ensure that runoff leaving the post-development site:

- Does not exceed the capacity of the receiving conveyance facility or water body.
- Does not increase the potential for stream bank and stream channel erosion.
- Does not add significant volume to an existing closed depression, such as Lake Forest or other similar geologic features found throughout the City.
- Does not create or increase any upstream or downstream flooding problems.
- Does not create or increase the occurrence of CSOs or basement sewer backups.

In order to achieve the City's Policy, connection of the overflow pipe from the infiltration facility to the city's storm sewer pipe or combined sewer and storm pipe will only be allowed under extenuating circumstances. The Engineering Department & Water Pollution Control Authority (WPCA) approval will be required. After the City's approval, developer shall submit the calculation adhering to the submittal requirements verifying that there will be no upstream & downstream flooding & no combined sewer or basement backups.

## B. Flow Control Requirements for Projects Adding more than 200 square feet of Impervious Surfaces

- All storm water or casual water from addition shall not drain to adjacent properties or over public sidewalk.
- Storm Water Disconnection is recommended by either diverting the runoff to vegetated surface or to LID & BMP such as drywells, rain garden, and grass swales.
- A zero increase in peak run off and volume for design year storm events shall be accomplished.

The Best Management practices and Low Impact Development features shall be implemented to help mitigate the effects of site disturbance and new impervious area. The use of non-structural best management practices is encouraged in order to minimize the reliance on structural practices.

## C. NPDES Combined Sewer Permits and Regulations

Storm sewers discharging to surface waters in Bridgeport are regulated under the NPDES. Measures required under NPDES storm water permits include storm water management during construction and storm water management on the developed site after construction.

Sections of Bridgeport's land area is served by sewers that carry sanitary sewage and storm water in a single pipe. During dry weather, all this flow is treated at water pollution control plants before discharge to receiving waters. During wet weather, total flow exceeds the capacity of the sewer system and a portion of the flow (combined sewer overflow) is discharged untreated to receiving waters.

Storm water management is an integral part of Bridgeport's approach to CSO management. United States Environmental Protection Agency's (USEPA) CSO Control Policy, published in 1994, promotes effective storm water management on a watershed basis.

All site designs shall establish storm water management practices to control the peak flow rates of storm water discharge associated with specified design storms and reduce the generation of storm water. The most effective practices increase infiltration and evaporation at the site level and reduce the amount of wet weather flow in the sewer system. These practices should seek to utilize pervious areas for storm water treatment and to infiltrate storm water runoff from driveways, sidewalks, rooftops, parking lots, and landscaped areas to the maximum extent practical to provide treatment for both water quality and quantity. Other practices detain storm water and release it to the sewer system at a slower rate, taking advantage of sewer system capacity over a longer period of time. These techniques are most effective during small storms. Techniques designed to limit streambank erosion and flood damage during large storms work equally well in areas of combined sewers and separate storm sewers.

## D. Reduced Site Disturbance and Storm Water Management

Item reserved for future implementation.

## 7. HYDROLOGIC DESIGN CRITERIA

The design procedures outlined in the CTDOTDM shall be followed. Design procedures other than what is outlined by the CTDOT must be approved by the City Engineer.

Peak discharges for the watersheds smaller than two hundred (200) acres may be derived using the rational method. Rational Method -  $Q = ciA$  (CTDOTDM Section 6.9) – **REMOVED**

Peak discharge for the design of wet and dry detention systems may be derived from the SCS Graphical Peak Discharge Method - Technical Release 55 (TR-55). Use of this method shall be limited to watersheds less than 20 square miles having a 24-hour duration and a storm pattern with a Type III distribution. 24-hour rainfall-frequency relationships for Fairfield County are provided in the CTDOTDM.

Watershed Area: Boundaries of the watershed shall be established from field survey and/or City topographic maps. The City's topographic maps are available through the Bridgeport Enterprise GIS System.

Time of Concentration: The amount of time needed for runoff to flow from the most remote point in the drainage basin to the point of analysis. Time of concentration shall be derived for all storm systems constructed. The minimum time of concentration to be used shall be ten minutes. An acceptable measure for time of concentration in a residential area is as follows: ten (10) minutes to gutter plus time to flow in gutter to first inlet plus time in the storm drains equals time of concentration. Other calculations of  $T_c$  shall follow CTDOTDM.

### Design Storm Criteria

An increase in peak storm water flow is not allowed under any circumstances. All projects shall be evaluated for the pre- and post-development peak flows in accordance with the following table.

Table 1 Pre vs. Post Design Storm Frequencies	
Project Type	Design Storms
Single Residential	2-, 10-year
Multi Residential	2-, 10-, 25-year
Commercial Districts	2-, 10-, 25-, 50-year
Industrial Parks	2-, 10-, 25-, 50-year

A zero increase in runoff shall be accomplished. At a minimum, the proposed development for the new construction shall be planned so that there is a 10% decrease in the volume of storm water runoff and post development peak flow rate from the site under the design storm frequencies noted in Table 1.

City's approval for the Overflow connections will be required and shall be sized for 100-yr storm event only to bypass post-development peak runoff in controlled flow velocities without eroding outlets and downstream properties.

## 8. HYDRAULIC DESIGN CRITERIA

### A. Storm Drainage Systems

All public roadway cross culverts, detention basins, channels and ditches, driveway culverts and street drainage shall be designed in conformance with the CTDOTDM, as amended. This requirement may be varied by the City Engineer according to conditions of the land and drainage requirements.

Storm drainage systems constructed under these regulations shall provide the proper drainage of the tributary area to the satisfaction of the City Engineer. The developer shall make provisions for the proper elimination of all stagnant water within the limits of the proposed site or subdivision.

The design of the drainage facilities shall be undertaken with due considerations of the rights of the abutters and the responsibilities of the City. Provisions shall be incorporated to prevent the interruption of natural flows at the limits of the site and to minimize the impacts on the adjacent properties.

Drainage systems shall be constructed to a suitable outlet (i.e. watercourse, City drainage system) and sized to accommodate the design storms listed in Table 2. All storm water runoff generated from new development or redevelopment shall not discharge storm water directly into an inland wetland or watercourse without adequate treatment and appropriate Inland Wetland Commission approval. Storm water shall not discharge into a natural depression without a point of release unless the proper rights for storage and/or provisions for adequate outlets have been secured.

Table 2 Design Storm Frequencies	
Drainage System	Design Storm
Storm Drains	25-year
Ditches and Channels	50-year
Detention Basins	2-, 10-, 25, 50-year <sup>1</sup>
Drywells	10 year <sup>2</sup>
Private Driveway Cross Culvert	10-year
Public Roadway Cross Culvert or Watercourse <sup>4</sup>	
Watershed <1 mi <sup>2</sup>	50-year
Watershed >1 mi <sup>2</sup>	100-year
Bridges/Box Culvert	100-year <sup>3</sup>
Pumping Stations	25-year

<sup>1</sup> A 100-year storm shall be routed through the facility to ensure that the embankment will not be damaged or fail during the passage of that storm.

<sup>2</sup> One to three family residences shall be designed for 2 year storm events

<sup>3</sup> Design of any structure located on a watercourse which is included in the Flood Insurance Study for Bridgeport shall be analyzed using the 100 year storm.

<sup>4</sup> State roadway shall conform to CTDOT standards.

Table 3 Installation Criteria	
Storm Water Velocity in Drainage System	Minimum: Three (3) feet per second Maximum: Fifteen (15) feet per second
Catchbasin Spacing	350 feet maximum from high point 300 feet maximum spacing (Note 1)
Manhole Spacing	300 feet maximum
Maximum allowable headwater in structure	One (1) foot below the top of the grate
Minimum grade of storm sewer	One-half (0.5) percent (Note 2)
Minimum amount of cover (Note 3)	Class V RCP – One (1) foot Class IV RCP – Two (2) feet ACCMF – Two (2) feet PVC/HDPE – Per manufacturer's specification
Storm water depth on catchbasin	Three (3) inches maximum in public parking lots One (1) inch below the top of curb on roadway
Storm water spread on catchbasin	Gutter width plus one-half (1/2) of the travel lane located closest to the gutter line
Minimum pipe size	Fifteen (15) inches in City right of way Twelve (12) inches on private developments Six (6) inches for roof leaders/overflow pipe from drywell Four (4) inches for underdrains

Notes:

1. Catchbasin spacing and type shall be determined by gutter flow and ponding analysis as described in the CTDOTDM. A drainage structure or manhole shall be provided at each grade change, change in horizontal direction and at each junction point of two or more storm drains.
2. Variance from this requirement may be granted by the Engineering Department if the storm sewers are designed with a minimum self-cleaning velocity of three (3) feet per second and the proper line and grade of the installation is verified by a licensed land surveyor.
3. Drainage systems within the City's right of way or within proposed right of ways shall be reinforced concrete pipe (RCP). Minimum cover requirements may be increased due to the amount of subjected loading.

## B. Flow Control Exemptions

On-site infiltration is required to the maximum extent practicable to control storm water volumes and flow rates. Where complete on-site infiltration is not practicable, other on-site retention techniques (such as pervious pavement, green roofs, planters, swales, and other surface vegetated facilities) are required to the maximum extent practicable to reduce runoff volumes, with the following exceptions:

- Wherever space constraints prohibit the construction of on-site retention facilities. Required setbacks from buildings and property lines need to be considered for each facility type.  
If the minimum setback for the infiltration facility is not met then a written statement should be submitted by a professional engineer that the decreased setback will not result in flooding and structural damage to the adjacent foundation.
- Wherever the use of surface retention is not practicable or safe because of soil or slope conditions. The City may require an investigation and recommendation of a qualified geotechnical engineer or engineering geologist to demonstrate that this exception applies to a site. It should be noted that some surface retention facilities, such as flow-through planter boxes, are lined and therefore do not infiltrate storm water into surrounding soils.
- Wherever contaminated soils limit the use of retention approaches.
- Wherever the development is located in an area of Bridgeport where flow control is not required. See Section 8.E.

Development and redevelopment are exempt from flow control requirements if they discharge storm water runoff directly into the Yellow Mill River, Pequonnock River, or Long Island Sound and have a surface area less than 5% of the watershed area upstream of the developed site. The applicant shall meet with Public Facilities to verify exemption.

### IMPORTANT NOTES:

- This exemption is for flow control only; pollution reduction requirements still apply.
- Development must still properly dispose of storm water using approved methods in accordance with this manual.

Where complete on-site infiltration or the use of retention facilities is not practicable, the absolute minimum guidelines for flow control (detention) shall be sufficient to reduce runoff volume and peak flow rates at 10% less their pre-development levels for the noted storm frequencies in Section 7. Note that for redevelopment projects, pre-development condition is determined as noted in Section 5.B.

## C. Flow Control Requirements Specific to Developments Discharging to the Combined Sewer System

Substantial storm water volumes in the combined sewer system result in CSOs and basement flooding in many areas served by combined sewers. Storm water that enters the combined sewer system during low-flow periods is treated at the City's wastewater treatment plants, using costly energy and other resources. For these reasons, it is important to limit the quantity of storm water entering the combined sewer system. Development projects in combined sewer areas are subject to the requirement to **infiltrate storm water on-site to the maximum extent practicable**.

For projects that are served by combined sewers but are unable to infiltrate on-site as per Section 8.B., the absolute minimum guidelines for flow control (detention) shall be sufficient to reduce peak flow rates by 10% less than their pre-development levels for the noted storm frequencies in Section 7, Table 1. Note that for redevelopment projects, pre-development condition is determined as noted in Section 4.B.

The WPCA Facility Plan 2000 Report identified 14 sewer shed areas that required significant improvements. These 14 areas are identified on Exhibit 8-1 with the area number matching that included in the report. Flow requirements will be enforced for all projects located within the 14 combined sewer system areas. The applicant shall meet with Public Facilities to verify exemption.

D. Flow Control Requirements Specific to Developments located in Flood Prone Areas

Substantial storm water volumes in portions of the storm sewer system result in surface and basement flooding in many areas. For these reasons, it is important to limit the quantity of storm water entering the drainage system, and development projects in flood prone areas are subject to the requirement to **infiltrate and retain storm water on-site to the maximum extent practicable.**

For developments that are located in flood prone areas but are unable to infiltrate on-site as per Section 8.B., the absolute minimum guidelines for flow control (detention) shall be sufficient to reduce runoff volume and peak flow rates by 10% less than their pre-development levels for the noted storm frequencies in Section 7. Note that for redevelopment projects, pre-development condition is determined as noted in Section 5.B.

As planning programs are completed for Bridgeport's watersheds, new Flood Control Districts will be listed in the manual which will more accurately reflect the level of flood protection needed in localized settings.

Exhibit 8-2 provides the location of the flood prone areas where flow requirements will be enforced. The applicant shall meet with Public Facilities to verify exemption.

## F. Dry Detention Basins

(CTDOTDM Chapter 10)

Dry detention basins are utilized for the detention of storm water to reduce the peak discharge and release the stored water at an acceptable and controlled rate. Dry detention basins shall be designed to drain completely within 72 hours.

Detention structures can be categorized as dry basins, underground storage facilities, and multi-use storage areas such as parking lots, roadway shoulder, and other shallow holding areas. Structures for detention of storm water may be considered together since the major control structures functions the same for each. The maximum depth of storm water allowed at any location in a parking lot shall be six (6) inches.

Control structure release rates shall approximate pre-developed peak runoff rates for the two (2), ten (10), and twenty five (25) year storms, with emergency overflow capable of handling the 100-year discharge. Measures should be employed to prevent the clogging of the outlet structure.

A minimum freeboard of one (1) foot above the 100-year water surface elevation shall be provided for all impoundments. The 100-year event shall be routed through the facility to ensure that the embankment will not be damaged or fail during the passage of that storm.

Relief may be granted from the one hundred (100) year storm design requirements for existing sites with the approval of the City Engineer and provided that:

- 1.) The physical constraints of site will not allow for construction of a basin for the one hundred (100) year storm event.
- 2.) Any possible increase in runoff will not adversely impact adjacent properties and area upstream and down stream from the project.

Fencing may be required around the detention basin for public safety. An access gate shall be provided for maintenance purposes. The maintenance of all detention basins, which are required, will be the responsibility of the private property owner(s).

Detention basins shall be constructed as part of the first phase work and incorporate sedimentation and erosion controls to minimize the impacts of construction on adjacent watercourses.

Detention basin embankments shall have a minimum top width of eight (8) feet along the access side of the basin. The bottom of the facility shall slope at 0.5% minimum toward the outlet.

The calculations for the detention pond shall provide information on the impacts of the outflow hydrograph from the detention basin on the existing drainage systems and/or watercourse.

Detention basins that discharge to combined sewers may only discharge 90% of the peak rate of the 10-year predevelopment flow. Storage outflows greater than that rate (i.e. 25-, 50-, 100-year) must be detained longer onsite to ensure that the basin discharge does not overload the combined sewer.

#### G. Catchbasin with Drywell Design

The use of drywells as a method of storm water discharge must only be considered after all other methods (discharge into City system, watercourse) of storm water discharge have been reviewed and found to be unacceptable by the City Engineer. Drywell systems require constant maintenance to keep them effective, the designer shall design a system that will include maintenance reduction items (i.e. pavement sweeping, low plantings, inspection schedule to remove debris, trash, sediment and other waste material).

Soil data must be submitted to ensure that the soil conditions will allow the installation of a drywell system.

The following information shall be provided:

1. Soil Boring
  - a) Deep test pits.
  - b) Provide information on soil conditions and depths.
  - c) Provide information on the ground water elevation.
  - d) Provide the elevation of bedrock.
  - e) Provide information on the location and the date of the boring(s). The boring(s) shall be in the vicinity of and a minimum of two (2) feet deeper than the proposed drywell system.

2. Drywell Design Criteria

No credit for storage will be given for any part of the system which is below the mottling (apparent groundwater markings in soil layer) elevation.

The maximum amount of Storage allowed for the voids within any stone layer placed around the drywell is forty (40) percent of the volume of the area occupied by the stone.

The drywell and the surrounding stone must be wrapped with geotextile.

The drywell system shall have measures incorporated which prevent sediment from entering the drywell which will affect the performance and/or life of the drywell.

A six inch overflow connection to an existing drainage system shall be included except where an exception is granted by the City Engineer.

3. The following information on the drywells must be provided:
  - a) Type & size of structure
  - b) The loading for which the unit was designed
  - c) Invert elevations of all pipes
  - d) Elevations
  - e) Construction details

The drywell shall be sized by the development of a hydrograph. Rational Method triangular hydrograph is an acceptable method for small sites (less than one acre). A minimum of two times the time of concentration shall be utilized for the back leg of a triangular hydrograph. The drywell system design should not include any credit for percolation. The percolation values are to be considered a factor of safety.

The design of the system will be reviewed and approved by the Engineering Department.

## 9. GENERAL STORM WATER MANAGEMENT POLICIES

### A. Channel Right-of-Ways

A channel or brook access of sufficient width to include a fifteen (15) foot access strip on both sides in addition to the width of the channel or brook from top of bank to top of bank, shall be offered for dedication to the City for access purposes. Channels shall be rip-rapped or appropriately lined when deemed necessary.

### B. Drainage Easements

Drainage easements, outside of street lines, shall be a minimum of twenty-five (25) feet wide, fifteen (15) feet on one side and ten (10) feet on opposite side of the storm drain. Easement for the system and the outlet structure shall extend a minimum of ten (10) feet beyond the end of the system or to a suitable existing storm drain or an adequate natural watercourse.

### C. Intersection Grading

Where the development streets join existing streets, the developer must provide drainage at the intersections as necessary, or as directed by the City Engineer. During the development of a private site, the design should prevent sheet flow from the drives and parking lots from reaching the streets.

### D. Private Drains

Rear yard drains, sump pumps or foundation drains that are connected to the storm drainage system, must be shown on the final approved plan of the drainage system. The use of yard drains are allowed in grassed areas, with the approval of the City Engineer.

It is unlawful to connect any of these items to a sanitary sewer (private or municipal).

### E. Drainage Standard Details

All storm drainage facilities constructed under these Regulations shall conform, wherever possible, to the CTDOT standard details or as approved by Engineering.

### F. Minimum WPCA/Engineering Standards

1. All storm main design has to be performed by and certified to by a State of Connecticut licensed professional engineer.
2. A sanitary sewer connection permit is needed before connecting into a combination system. The WPCA has to be notified at least two working days in advance before the connection is made so that it can be inspected.
3. The sanitary service and storm service lines have to be separate and independent to the combined sewer main.
4. A service should have a backwater valve if it discharges groundwater from a basement sump pump. The backwater valve, such as Cleancheck®, must be located on the property, five feet from the building, accessible by a eight inch diameter riser pipe with cover, and has to be maintained by the owner.
5. The connection of a new private drainage system to the City collection system cannot be made at a City catch basin.
6. Any illegal connection to a sanitary or storm sewer system will be treated as theft of services and will be dealt with accordingly.
7. If there is no storm sewer adjacent to the property, a storm sewer line extension may be required of the developer at his/her expense.
8. Proposed grading of any development should not adversely impact any neighboring properties.
9. Pre-construction conditions will be considered those that existed during the sites most recent "use". Interim phase cleanup would not be considered recent "use", any illegal construction will not be considered recent "use".

## **10. STORM WATER CREDITS**

Section reserved for future implementation.

## 11. STORM WATER MANAGEMENT PLAN SUBMITTAL REQUIREMENTS

1. Storm Water Management Report
2. Operation and Maintenance Plans
3. Erosion & Sediment Control Plan for more than one-half ( $\frac{1}{2}$ ) acre
4. Landscaping Plan where applicable (detailing the vegetation to be planted after construction is finished)

### 1. Storm Water Management Report

#### A. Project Narrative

- Project description & purpose
- Executive summary
- Proposed structural or non-structural BMP's
- Soil Evaluation
- Comparison Table for Pre - & Post Development Peak Flow, Volume & Percent Difference
- Construction Schedule

#### B. Calculations

Hydrologic and hydraulic design calculations for the pre-development and post-development conditions for the design storms as specified in Section 7, Table 1 shall follow the CT DOT Drainage Manual guidelines.

Such calculations shall include, at a minimum:

1. Calculations shall use TR-55 & TR-20 methodology. Rational method should only be used for pipe sizing.
1. Description of the design storm frequency, intensity and duration used to evaluate the design.
2. The hydraulic formulas used as the basis for the design.
3. The design criteria, procedures, and any pertinent information incorporated into the design.
4. Time of concentration and travel time.
5. Soil Curve Numbers or runoff coefficients.
6. Peak runoff rates and total runoff volumes for each watershed area.
7. Infiltration rates, where applicable, as determined by field testing of hydraulic conductivity.
8. Culvert or pipe capacities.
9. Flow velocities.
10. Data on any increase in rate and volume of runoff for the design storms referenced in the CT DOT Drainage Manual.
11. Reference graphs and/or charts used in the design but not included in the references for this manual.
12. Water surface elevations showing methodologies used and supporting calculations.

13. Stage-discharge curves, outlet rating curves and inflow and outflow hydrographs for storage facilities (e.g., storm water ponds and wetlands).
14. Hydrologic and hydraulic analysis for all structural components of storm water system (e.g., storm drains, open channels, swales, management practices, etc.) for applicable design storms including final analysis of potential downstream effects of project, where necessary.
15. Documentation of sources for all computation methods and field test results.
16. Soils Information: If a storm water management control measure depends on the hydrologic properties of soils (e.g., infiltration basins), then a soils report must be submitted. The soils report must be based upon on-site boring logs or soil pit profiles. The number and location of required soil borings or soil sites must be determined based on what is needed to determine the suitability and distribution of soil types present at the location of the control measure. If infiltration is to be part of the storm water management plan, then field testing of hydraulic conductivity is required.

The design and planning of all storm water management facilities shall include detailed maintenance and repair procedures to ensure their continued function. These plans will identify the parts or components of a storm water management facility that need to be maintained and the equipment and skills or training necessary.

## **2. Operation & Maintenance Plan**

The applicant must submit a plan of operation & maintenance for all storm water Best Management Practices (BMP's) prior to an issuance of the Certificate of Occupancy through Planning & Zoning Department. Operation & maintenance plan must be filed on land records including a notice of declaration of responsibilities and obligations.

At a minimum Maintenance & Operation Plan shall include the following:

1. Plan that is drawn to scale and shows the location of all storm water BMP's along with the discharge point.
2. Storm water management system owners
3. The party or parties responsible for operation and maintenance including the process of notification to the future property owners of the presence of the storm water management system and the requirement for proper operation & maintenance.
4. Storm water Management practices maintenance Declaration Document
5. Description of maintenance tasks with recommended implementation schedule
6. Description of access and safety issues

### **3. Maps & Plans**

The applicant must depict the storm water management on the supplemental plans (scale of 1" = 40' or greater detail). Such plans must illustrate at a minimum:

1. Perennial and intermittent streams.
2. Existing and proposed contours (two feet minimum) or elevations.
3. Existing and proposed building or structures
4. Location and boundaries of resource protection areas such as wetlands, lakes, ponds, and other setbacks (e.g., stream buffers, drinking water well setbacks, septic setbacks)
5. Location of existing and proposed conveyance systems such as grass channels, swales, and storm drains with size and elevations.
6. Location of downspouts, roof leaders and storm lateral
7. Easements if required.
8. Each catchment area clearly delineated with label / structure number.
9. Flow paths.
10. Location of floodplain and floodway limits.
11. Location and dimensions of proposed channel modifications, such as bridge or culvert crossings.
12. Location, size, maintenance access, and limits of disturbance of proposed structural storm water management practices.
13. Representative cross-section and profile drawings and details of structural storm water management practices and conveyances (i.e., storm drains, open channels, swales, etc.) which include existing and proposed structural elevations (e.g., invert of pipes, manholes, etc.) and design water surface elevations.
14. Structural details of outlet structures, embankments, spillways, stilling basins, grade control structures, conveyance channels, etc.

## **12. DEVELOPMENT AND REDEVELOPMENT WITHIN FLOOD HAZARD ZONES**

The following information shall be provided in addition to any requirements in the Zoning Regulations and shall conform to Ordinance 15.44:

- 1.) Elevation and limits of the one hundred (100) year flood zone (elevations are to be based on the current NGVD datum).
- 2.) The limits of inland wetlands and buffer zones.
- 3.) Existing and proposed grading.
- 4.) Elevation of the lowest floor of any structure. The lowest floor elevation should be at or above the one hundred (100) year flood zone elevation.
- 5.) Limits of construction.
- 6.) Quantities of cuts and fills within the flood zone, flood way, or compensation areas.
- 7.) Provide sections and calculations for excavation within the flood zones.
- 8.) Provide evidence of receiving all necessary State and Federal permits.

Compensatory storage at the same elevation must be provided for any fill placed within a flood hazard zone. Information shall be provided on the affects of the development on the floodway carrying capacity of the flood zone.

Exhibit 12-1 provides the boundary limits of the 100-year flood event.

### **13. SOIL EROSION AND SEDIMENT CONTROL PLANS FOR LAND DEVELOPMENT**

A soil erosion and sediment control plan consistent with the publication of the Connecticut Council on Soil and Water Conservation in Cooperation with the Connecticut Department of Environmental Protection entitled, 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended, shall be submitted with all project applications when the disturbed area of development is more than one-half (½) acre.

All projects to be reviewed and approved by the Engineering Department, City of Bridgeport shall include methods to adequately minimize erosion or sediment contamination to streams, ponds, rivers and reservoirs. The design engineer shall submit with his design plans, the proposed erosion sedimentation control measures consistent with the guidelines referenced.

The Engineering Department, or its duly authorized representative, shall review these plans as submitted and shall take necessary steps to ensure compliance by the developer with these plans as finally approved.

All Plans shall contain the information requested in the E&S checklist provided in the 2002 Guidelines for Soil Erosion and Sediment Control, Chapter 3.

The estimated costs of measures required to control soil erosion and sedimentation, as specified in the certified plan shall be submitted as part of the application. Measures to be taken to control erosion and sedimentation shall be described and provided for on the approved plans and the estimated cost of accomplishing such measures shall be covered in a Bond.

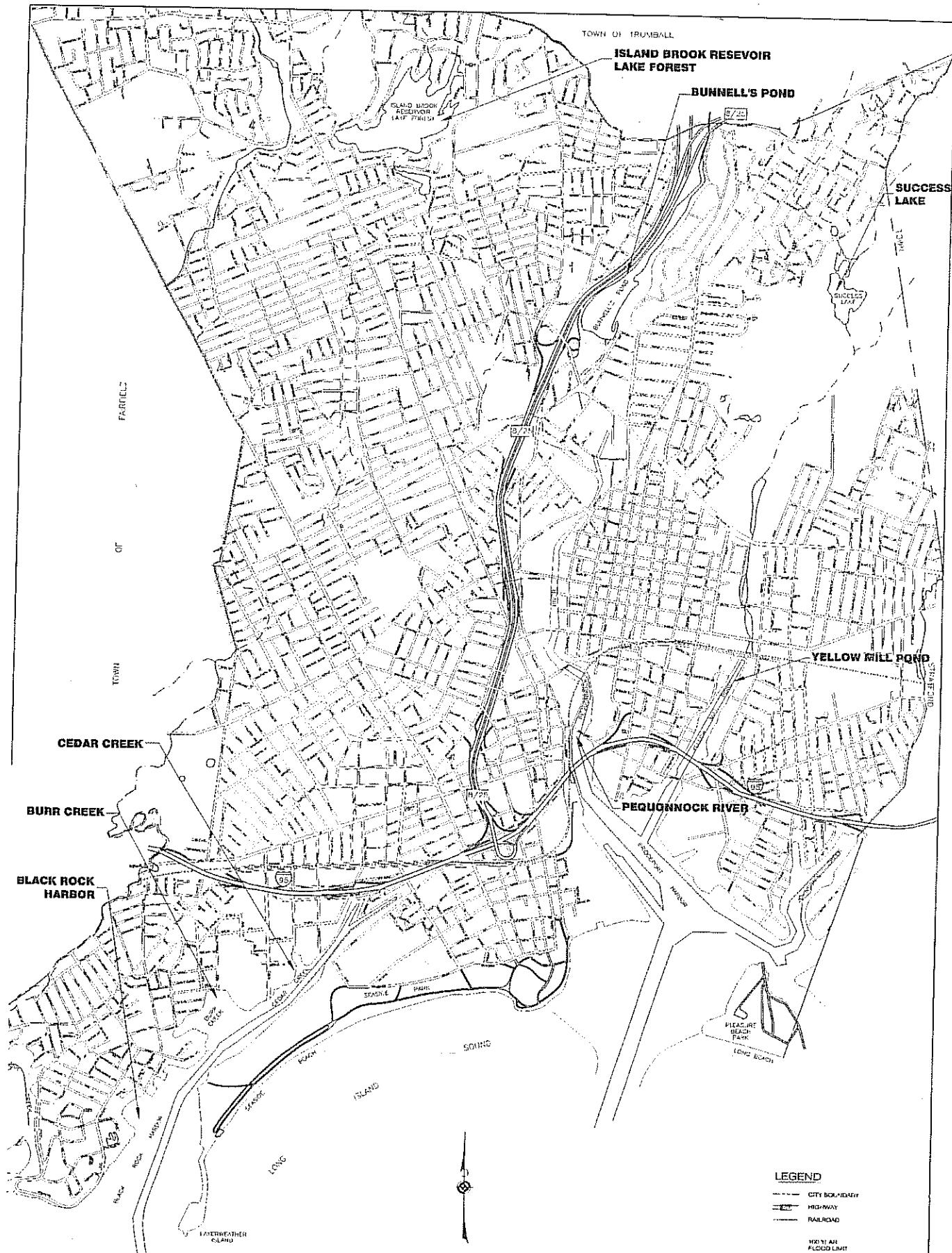
Site development shall not begin unless the soil erosion and sediment control plan is certified and those control measures and facilities in the plan scheduled for installation prior to site development are installed.

Planned soil erosion and sediment control measures and facilities shall be installed prior to construction, where possible, in accordance to the certified plan. All control measures and facilities shall be maintained in effective condition to ensure the compliance of the certified plan.

Land disturbances are to be kept to a minimum. Restabilization is to be scheduled as soon as possible.

At the building permit application stage, a review will be conducted to ensure conformance with the plan as approved.

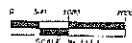
The Engineering Department, or its duly authorized representative shall make the necessary review and evaluation of methods used and the overall effectiveness of the erosion and sedimentation control program.



Project No.	2100000000
Sheet No.	12.1
Scale	1" = 100'
Date	12/1/00
Drawn by	W. J. 12.1



**CITY OF BRIDGEPORT  
CONNECTICUT**  
Storm Water Management Manual  
May 2008  
Bridgeport, CT  
Title  
Flood Hazard Zone



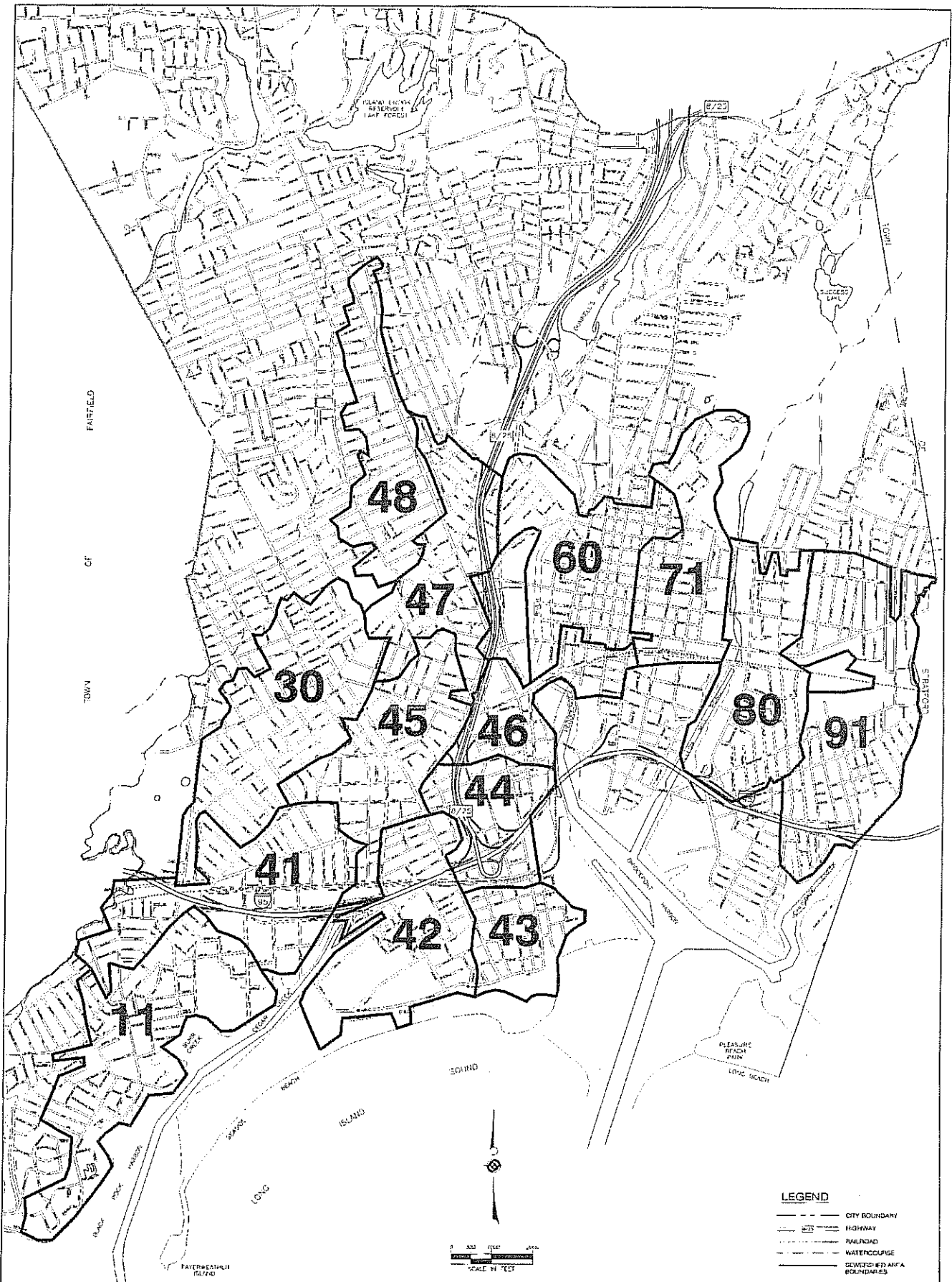
Revised	By	Date	Drawn by	By	Date

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**Stantec**

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Project: Bridgeport  
 Date: May 2008  
 Drawn by: [Name]  
 Checked by: [Name]  
 Approved by: [Name]



CITY OF BRIDGEPORT  
 CONNECTICUT  
 Storm Water Management Manual  
 May 2008  
 Bridgeport, CT  
 The  
 Combined Sewer System Areas of Concern  
 from Facility Plan 2000 Report

Revision	By	Date	Revised

**LEGEND**  
 CITY BOUNDARY  
 HIGHWAY  
 RAILROAD  
 WATERCOURSE  
 SEWER SYSTEM AREA BOUNDARIES



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General Permit for the Discharge of Stormwater from Small  
Municipal Separate Storm Sewer Systems

01335

Stormwater Monitoring Report Form

PERMITTEE INFORMATION:

Town: City of Bridgeport, Connecticut  
Mailing Address: 205 Bostwick Avenue, Bridgeport, Connecticut 06605  
Contact Person: Jose Diaz Title: Lab Forman Phone: 203-727-4543  
Permit Registration # GSM: 00017

SAMPLING INFORMATION:

Discharge Location (Lat/Long or other description) Water Street / Public Works 01 (NEWL: #57243)  
East of drive in lot - Latitude: 41° 10.982 N Longitude: 73° 11.293 W  
Please circle the appropriate area description: ☒ Industrial ☐ Commercial ☐ Residential  
Receiving Water (Name, Basin) Long Island Sound  
Time of discharge start: \_\_\_\_\_  
Date/Time Collected: 10/9/16 8:45 AM Water Temperature: 20 C  
Person Collecting Sample: \_\_\_\_\_  
Storm Magnitude (Inches): 0.71 inches Storm Duration (Hours) \_\_\_\_\_  
Date of Previous Storm Event: JD / DM ED

Monitoring Results:

Parameter	Method	Results (Units)	Laboratory
Sample pH ✓	150.1	7.38 SPH	Northwest Environmental Water Labs, Inc
Rain pH ✓	150.1	6.30 SG	"
Hardness /	SM 23401	672 mg/l	"
Conductivity /	120.1	6120 uS/cm	"
Oil & Grease /	1664A	ND	"
COD /	410.4	63.7 mg/l	"
Turbidity /	180.1	3.65 NTU	"
TSS ✓	SM 2540 D	8.5 mg/l	"
TP /	305.2	0.10	"
Ammonia /	SM 4500 NH3 D	0.17 mg/l	"
TKN /	SM 4500 NH3	0.85 mg/l	"
NO <sub>3</sub> +NO <sub>2</sub> ✓	SM 4500 NO3 D	0.50 mg/l	"
E. Coli /	1104	> 200000	"

STATEMENT OF ACKNOWLEDGEMENT:

I certify that the data reported on this document were prepared under my direction or supervision in accordance with the MS4 General Permit. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Authorized Official: \_\_\_\_\_

Signature: [Signature]

Date: 10-9-16



Northwest Environmental Water Labs, Inc.  
450 Meriden Rd Waterbury, CT 06705  
(203) 437-4110 FAX (203) 725-0501  
LAB# CT-PH-0537 EPA-061  
NELAP accredited quality system NY# 11826

## Report of Analysis

Name: Severn Trent Environmental Services, Inc-East  
PO Box 511  
Attn: Tom Varley  
Bridgeport, CT 06601  
Sample Date: 10/9/2016 8:45 AM  
Receipt Date: 10/9/2016 11:30 AM  
Report Date: 11/10/2016  
Sample Site: Water St/Public works

Sample ID#: 91335  
Sample Type: Discharge Water  
Sample Source: Bottle 01  
Sampler: Jose Diaz Client  
Approved By: Chris

Parameter	Sample Result	Units	Limits	MDL	Analysis Date	Analyst	Method
<b>Biological</b> E.Coli(1)	>200000	CFU	No Limit Set	0	10/9/2016	JU	1104
<b>Minerals</b> Hardness(1)	672	mg/l	No Limit Set	2	10/10/2016	CC	SM2340C
<b>Nutrient</b> Ammonia as N(1)	0.17	mg/l	No Limit Set	0.1	10/12/2016	CC	SM4500NH3D
Kjeldahl Nitrogen as N(1)	0.85	mg/l	No Limit Set	0.1	10/13/2016	CC	SM4500NH3
NO2 + NO3(1)	0.50	mg/l	No Limit Set	0.25	10/10/2016	CC	SM4500NO3D
Total Nitrogen as N(1)	1.35	mg/l	No Limit Set	0.25	10/17/2016	CC	CALCTN
Total Phosphorus(1)	0.10		No Limit Set	0	10/12/2016	CC	365.2
<b>Organic Compounds</b> Total Oil & Grease(1)	ND	mg/l	No Limit Set	5	10/12/2016	CC	1664A
<b>Oxygen Demand</b> Chemical Oxygen Demand(1)	63.7	mg/l	No Limit Set	2	10/10/2016	CC	410.4
<b>Physical</b> Conductivity(1)	6120	uS/cm	No Limit Set	0	10/11/2016	CC	120.1
PH(1)	7.38	SPH	No Limit Set	0	10/10/2016	NF	150.1
PH-rain(1)	6.30	SU	No Limit Set	0	10/9/2016	JU	150.1
Temperature(1)	20	C	No Limit Set	1	10/9/2016	JU	170.1-C
Total Suspended Solids(1)	8.5	mg/l	No Limit Set	5	10/14/2016	CC	SM2540D
Turbidity(1)	3.65	NTU	No Limit Set	0.05	10/10/2016	NF	180.1

ND = Not Detected  
+ = Out of Range  
MDL = Minimum Detection Level

Results Certified by Northwest Environmental Labs Inc and are NELAP accredited for methods 9215B, 9221D, and ReadyCult coliforms only.

NOTE: The test results are only valid for data sample was taken. We do not accept any liability for use of these results.



# General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems

## Stormwater Monitoring Report Form

9/336

### PERMITTEE INFORMATION:

Town: City of Bridgeport, Connecticut  
Mailing Address: 205 Bostwick Avenue, Bridgeport, Connecticut 06605  
Contact Person: Jose Diaz Title: Lab Forman Phone: 203-727-4543  
Permit Registration # GSM: 00017

### SAMPLING INFORMATION:

Discharge Location (Lat/Long or other description) Gilman & Lake Street 02 (NEWL: #57350)  
530 Lake Avenue - Latitude: 41° 09.114' N Longitude: 73° 13.894' W  
Please circle the appropriate area description: Industrial Commercial Residential  
Receiving Water (Name, Basin) Long Island Sound  
Time of discharge start: \_\_\_\_\_  
Date/Time Collected: 10/9/16 9:30 AM Water Temperature: 20 C  
Person Collecting Sample: \_\_\_\_\_  
Storm Magnitude (Inches): 0.71 inches Storm Duration (Hours) \_\_\_\_\_  
Date of Previous Storm Event: 10/08 CD

### Monitoring Results:

Parameter	Method	Results (Units)	Laboratory
Sample pH	150.1	7.17 SPH	Northwest Environmental/Water Labs, Inc
Rain pH	150.1	6.20 SH	"
Hardness	SM 2340 C	36 mg/l	"
Conductivity	120.1	44.7 uS/cm	"
Oil & Grease	1664A	ND mg/l	"
COD	410.4	30.5 mg/l	"
Turbidity	180.1	5.63 NTU	"
TSS	SM 2540 D	13.5 mg/l	"
TP	365.2	0.29	"
Ammonia	SM 4500 NH3D	0.20 mg/l	"
TKN	SM 4500 NH3	0.90 mg/l	"
NO <sub>3</sub> +NO <sub>2</sub>	SM 4500 NO3D	0.94 mg/l	"
E. Coli	1604	7200000 CFU	"

### STATEMENT OF ACKNOWLEDGEMENT:

I certify that the data reported on this document were prepared under my direction or supervision in accordance with the MS4 General Permit. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Authorized Official:

Signature: C. Deane Date: 10-9-16



Northwest Environmental Water Labs, Inc.  
450 Meriden Rd Waterbury, CT 06705  
(203) 437-4110 FAX (203) 725-0501  
LAB# CT-PH-0537 EPA-061  
NELAP accredited quality system NY# 11826

## Report of Analysis

Name: Severn Trent Environmental Services, Inc.-East      Sample ID#: 91336  
PO Box 511      Sample Type: Discharge Water  
Attn: Tom Varley      Sample Source: Bottle 02  
Bridgeport, CT 06601      Sampler: Jose Diaz Client  
Sample Date: 10/9/2016 9:20 AM      Approved By: Chris  
Receipt Date: 10/9/2016 11:30 AM  
Report Date: 11/10/2016  
Sample Site: Gilman St/ Lake St

Parameter	Sample Result	Units	Limits	MDL	Analysis Date	Analyst	Method
<b>Biological</b> E.Coli(1)	>200000	CFU	No Limit Set	0	10/9/2016	JU	1104
<b>Minerals</b> Hardness(1)	36	mg/l	No Limit Set	2	10/10/2016	CC	SM2340C
<b>Nutrient</b> Ammonia as N(1)	0.20	mg/l	No Limit Set	0.1	10/12/2016	CC	SM4500NH3D
Kjeldahl Nitrogen as N(1)	0.90	mg/l	No Limit Set	0.1	10/13/2016	CC	SM4500NH3
NO <sub>2</sub> + NO <sub>3</sub> (1)	0.94	mg/l	No Limit Set	0.25	10/10/2016	CC	SM4500NO3D
Total Nitrogen as N(1)	1.84	mg/l	No Limit Set	0.25	10/17/2016	CC	CALCTN
Total Phosphorus(1)	0.29		No Limit Set	0	10/12/2016	CC	365.2
<b>Organic Compounds</b> Total Oil & Grease(1)	ND	mg/l	No Limit Set	5	10/12/2016	CC	1664A
<b>Oxygen Demand</b> Chemical Oxygen Demand(1)	30.5	mg/l	No Limit Set	2	10/10/2016	CC	410.4
<b>Physical</b> Conductivity(1)	44.7	uS/cm	No Limit Set	0	10/11/2016	CC	120.1
PH(1)	7.17	SPH	No Limit Set	0	10/10/2016	NF	150.1
PH-rain(1)	6.30	SIJ	No Limit Set	0	10/9/2016	JU	150.1
Temperature(1)	20	C	No Limit Set	1	10/9/2016	JU	170.1-C
Total Suspended Solids(1)	13.5	mg/l	No Limit Set	5	10/14/2016	CC	SM2540D
Turbidity(1)	5.63	NTU	No Limit Set	0.05	10/10/2016	NF	180.1

ND = Not Detected  
+ = Out of Range  
MDL = Minimum Detection Level

Results Certified by Northwest Environmental Labs Inc and are NELAP accredited for methods 9215B, 9221D, and ReadyCult coliforms only.

For data sample was taken. We do not accept any liability for use of these results



General Permit for the Discharge of Stormwater from Small  
Municipal Separate Storm Sewer Systems

Stormwater Monitoring Report Form

9/337

PERMITTEE INFORMATION:

Town: City of Bridgeport, Connecticut  
Mailing Address: 205 Bostwick Avenue, Bridgeport, Connecticut 06605  
Contact Person: Jose Diaz Title: Lab Forman Phone: 203-727-4543  
Permit Registration # GSM: 00017

SAMPLING INFORMATION:

Discharge Location (Lat/Long or other description) Boston Avenue / Pembroke Street 03 (NEWL: #57239)  
62.10' East of Pole #519 -- Latitude: 41° 11.559' N Longitude: 73° 10.266' W  
Please circle the appropriate area description: Industrial ☒ Commercial ☐ Residential ☐  
Receiving Water (Name, Basin) Long Island Sound  
Time of discharge start: \_\_\_\_\_  
Date/Time Collected: 10/9/16 10:15 AM Water Temperature: 20C  
Person Collecting Sample: \_\_\_\_\_  
Storm Magnitude (Inches): 0.7 inches Storm Duration (Hours) \_\_\_\_\_  
Date of Previous Storm Event: JD / DM CS

Monitoring Results:

Parameter	Method	Results (Units)	Laboratory
Sample pH	150.1	6.92 SPH	Northwest Environmental Water Labs, Inc.
Rain pH	150.1	6.30 SH	"
Hardness	SM 2340 C	32 mg/l	"
Conductivity	120.1	57.6 $\mu$ S/cm	"
Oil & Grease	1064A	ND mg/l	"
COD	410.4	39.9 mg/l	"
Turbidity	180.1	13.4 NTU	"
TSS	SM 2540 D	15.5 mg/l	"
TP	365.2	0.28	"
Ammonia	SM 4500 NH3D	0.41 mg/l	"
TKN	SM 4500 NH3	1.75 mg/l	"
NO <sub>3</sub> +NO <sub>2</sub>	SM 4500 NO3D	0.70 mg/l	"
E. Coli	1104	720000 CFU	"

STATEMENT OF ACKNOWLEDGEMENT:

I certify that the data reported on this document were prepared under my direction or supervision in accordance with the MS4 General Permit. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Authorized Official: \_\_\_\_\_

Signature: C. D. B. [Signature] Date: 10-9-16



Northwest Environmental Water Labs, Inc.  
450 Meriden Rd Waterbury, CT 06705  
(203) 437-4110 FAX (203) 725-0501  
LAB# CT-PH-0537 EPA-061  
NELAP accredited quality system NY# 11826

## Report of Analysis

Name: Severn Trent Environmental Services, Inc-East  
PO Box 511  
Attn: Tom Varley  
Bridgeport, CT 06601  
Sample Date: 10/9/2016 10:15 AM  
Receipt Date: 10/9/2016 11:30 AM  
Report Date: 11/10/2016  
Sample Site: Boston Ave/Pembroke

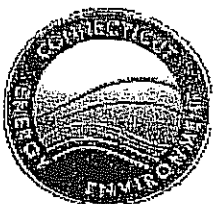
Sample ID#: 91337  
Sample Type: Discharge Water  
Sample Source: Bottle 03  
Sampler: Jose Diaz Client  
Approved By: Chris

Parameter	Sample Result	Units	Limits	MDL	Analysis Date	Analyst	Method
<b>Biological</b> E.Coli(1)	>200000	CFU	No Limit Set	0	10/9/2016	JU	1104
<b>Minerals</b> Hardness(1)	32	mg/l	No Limit Set	2	10/10/2016	CC	SM2340C
<b>Nutrient</b> Ammonia as N(1)	0.41	mg/l	No Limit Set	0.1	10/12/2016	CC	SM4500NH3D
Kjeldahl Nitrogen as N(1)	1.75	mg/l	No Limit Set	0.1	10/13/2016	CC	SM4500NH3
NO2 + NO3(1)	0.70	mg/l	No Limit Set	0.25	10/10/2016	CC	SM4500NO3D
Total Nitrogen as N(1)	2.45	mg/l	No Limit Set	0.25	10/17/2016	CC	CALCTN
Total Phosphorus(1)	0.28		No Limit Set	0	10/12/2016	CC	365.2
<b>Organic Compounds</b> Total Oil & Grease(1)	ND	mg/l	No Limit Set	5	10/12/2016	CC	1664A
<b>Oxygen Demand</b> Chemical Oxygen Demand(1)	39.9	mg/l	No Limit Set	2	10/10/2016	CC	410.4
<b>Physical</b> Conductivity(1)	57.5	uS/cm	No Limit Set	0	10/11/2016	CC	120.1
PH(1)	6.92	SPH	No Limit Set	0	10/10/2016	NF	150.1
PH-rain(1)	6.30	SU	No Limit Set	0	10/9/2016	JU	150.1
Temperature(1)	20	C	No Limit Set	1	10/9/2016	JU	170.1-C
Total Suspended Solids(1)	15.5	mg/l	No Limit Set	5	10/14/2016	CC	SM2540D
Turbidity(1)	13.4	NTU	No Limit Set	0.05	10/10/2016	NF	180.1

ND = Not Detected  
+ = Out of Range  
MDL = Minimum Detection Level

Results Certified by Northwest Environmental Labs Inc and are NELAP accredited for methods 9215B, 9221D, and Readycult coliforms only.

Note: The test results are only valid for date sample was taken. We do not accept any liability for use of these results.



General Permit for the Discharge of Stormwater from Small  
Municipal Separate Storm Sewer Systems

Stormwater Monitoring Report Form

91338

PERMITTEE INFORMATION:

Town: City of Bridgeport, Connecticut  
Mailing Address: 205 Bostwick Avenue, Bridgeport, Connecticut 06605  
Contact Person: Jose Diaz Title: Lab Forman Phone: 203-727-4543  
Permit Registration # GSM: 00017

SAMPLING INFORMATION:

Discharge Location (Lat/Long or other description) Waldemere Street 04 (NEWL: #57240)

Broad Street 52' North of Waldemere — Latitude: 41° 09.831' N Longitude: 73° 11.144' W

Please circle the appropriate area description: Industrial Commercial Residential

Receiving Water (Name, Basin) Long Island Sound

Time of discharge start: \_\_\_\_\_

Date/Time Collected: 10/9/16 9:41 AM Water Temperature: 20C

Person Collecting Sample: \_\_\_\_\_

Storm Magnitude (Inches): 0.71 inches Storm Duration (Hours) \_\_\_\_\_

Date of Previous Storm Event: 50/0m ED

Monitoring Results:

Parameter	Method	Results (Units)	Laboratory
Sample pH	150.1	6.42 SPH	Northwest Environmental Water Lab, Inc
Rain pH	150.1	6.30 SY	
Hardness	SM 3340 C	484 mg/l	
Conductivity	120.1	4470 uS/cm	
Oil & Grease	16644	NTD mg/l	"
BOD	410.4	52.9 mg/l	"
Turbidity	180.1	4.33 NTU	"
SS	SM 2540 D	20 mg/l	"
P	368.2	0.10	"
Ammonia	SM 4500 NH3D	ND mg/l	"
TKN	SM 4500 NH3	1.07 mg/l	"
IO <sub>3</sub> +NO <sub>2</sub>	SM 4500 NO3D	0.48 mg/l	"
E. Coli	1104	7832 CFU	"

STATEMENT OF ACKNOWLEDGEMENT:

I certify that the data reported on this document were prepared under my direction or supervision in accordance with the MS4 General Permit. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Authorized Official: \_\_\_\_\_

Signature: C. Deane

Date: 10-9-16



Northwest Environmental Water Labs, Inc.  
450 Meriden Rd Waterbury, CT 06705  
(203) 437-4110 FAX (203) 725-0501  
LAB# CT-PH-0537 EPA-061  
NELAP accredited quality system NY# 11826

## Report of Analysis

**Name:** Severn Trent Environmental Services, Inc-East  
PO Box 511  
Attn: Tom Varley  
Bridgeport, CT 06601  
**Sample Date:** 10/9/2016 9:41 AM  
**Receipt Date:** 10/9/2016 11:30 AM  
**Report Date:** 11/10/2016  
**Sample Site:** Waldemere St

**Sample ID#:** 91338  
**Sample Type:** Discharge Water  
**Sample Source:** Bottle 04  
**Sampler:** Jose Diaz Client  
**Approved By:** Chris

Parameter	Sample Result	Units	Limits	MDL	Analysis Date	Analyst	Method
<b>Biological</b> E.Coli(1)	7832	CFU	No Limit Set	0	10/9/2016	JU	1104
<b>Minerals</b> Hardness(1)	484	mg/l	No Limit Set	2	10/10/2016	CC	SM2340C
<b>Nutrient</b> Ammonia as N(1)	ND	mg/l	No Limit Set	0.1	10/12/2016	CC	SM4500NH3D
Kjeldahl Nitrogen as N(1)	1.07	mg/l	No Limit Set	0.1	10/13/2016	CC	SM4500NH3
NO2 + NO3(1)	0.48	mg/l	No Limit Set	0.25	10/11/2016	CC	SM4500NO3D
Total Nitrogen as N(1)	1.55	mg/l	No Limit Set	0.25	10/17/2016	CC	CALCTN
Total Phosphorus(1)	0.10		No Limit Set	0	10/12/2016	CC	365.2
<b>Organic Compounds</b> Total Oil & Grease(1)	ND	mg/l	No Limit Set	5	10/12/2016	CC	1664A
<b>Oxygen Demand</b> Chemical Oxygen Demand(1)	52.9	mg/l	No Limit Set	2	10/10/2016	CC	410.4
<b>Physical</b> Conductivity(1)	4470	uS/cm	No Limit Set	0	10/11/2016	CC	120.1
PH(1)	6.42	SPH	No Limit Set	0	10/10/2016	NF	150.1
PH-rain(1)	6.30	SU	No Limit Set	0	10/9/2016	JU	150.1
Temperature(1)	20	C	No Limit Set	1	10/9/2016	JU	170.1-C
Total Suspended Solids(1)	20	mg/l	No Limit Set	5	10/14/2016	CC	SM2540D
Turbidity(1)	4.33	NTU	No Limit Set	0.05	10/10/2016	NF	180.1

ND = Not Detected  
+ = Out of Range  
MDL = Minimum Detection Level

Results Certified by Northwest Environmental Labs Inc and are NELAP accredited for methods 9215B, 9221D, and ReadyCult coliforms only.

The test results are only valid for date sample was taken. We do not accept any liability for use of these results.



General Permit for the Discharge of Stormwater from Small  
Municipal Separate Storm Sewer Systems

Stormwater Monitoring Report Form

9/339

PERMITTEE INFORMATION:

Town: City of Bridgeport, Connecticut

Mailing Address: 205 Bostwick Avenue, Bridgeport, Connecticut 06605

Contact Person: Jose Diaz Title: Lab Forman Phone: 203-727-4543

Permit Registration # GSM: 00017

SAMPLING INFORMATION:

Discharge Location (Lat/Long or other description) Fairview Avenue / Chamberlain 05 (NEWL: #57349)

161 Fairview Avenue Ex't -- Latitude: 41° 12.275' N Longitude: 73° 11.750' W

Please circle the appropriate area description: Industrial ☐ **Commercial** ☒ Residential ☐

Receiving Water (Name, Basin) Long Island Sound

Time of discharge start: \_\_\_\_\_

Date/Time Collected: 10/9/16 10:00 AM Water Temperature: 20.1 C

Person Collecting Sample: \_\_\_\_\_

Storm Magnitude (Inches): 0.71 inches Storm Duration (Hours) 2.0

Date of Previous Storm Event: JD / OM

Monitoring Results:

Parameter	Method	Results (Units)	Laboratory
Sample pH	150.1	6.80 SPI	Northwest Environmental Water Labs, Inc.
in pH	150.1	6.30 SU	
rdness	sm 2340 C	12 mg/l	
nductivity	120.1	49.8 uS/cm	
& Grease	16644	ND mg/l	
OD	410.4	39.7 mg/l	
rbidity	180.1	7.32 NTU	
S	sm 2540 D	22.5 mg/l	
	365.2	0.15	
monia	sm 4500 NH3 D	1.20 mg/l	
N	sm 4500 NH3	1.13 mg/l	"
3+NO2	sm 4500 NO3 D	0.50 mg/l	
Coli	1104	13600 CFU	

STATEMENT OF ACKNOWLEDGEMENT:

I certify that the data reported on this document were prepared under my direction or supervision in accordance with MS4 General Permit. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Authorized Official: [Signature]

Signature: [Signature] Date: 10-9-16



Northwest Environmental Water Labs, Inc.  
450 Meriden Rd Waterbury, CT 06705  
(203) 437-4110 FAX (203) 725-0501  
LAB# CT-PH-0537 EPA-061  
NELAP accredited quality system NY# 11826

## Report of Analysis

**Name:** Severn Trent Environmental Services, Inc.-East  
PO Box 511  
Attn: Tom Varley  
Bridgeport, CT 06601  
**Sample Date:** 10/9/2016 10:00 AM  
**Receipt Date:** 10/9/2016 11:30 AM  
**Report Date:** 11/10/2016  
**Sample Site:** Fairview Ave/Chamberlain

**Sample ID#:** 91339  
**Sample Type:** Discharge Water  
**Sample Source:** Bottle 05  
**Sampler:** Jose Diaz Client  
**Approved By:** Chris

Parameter	Sample Result	Units	Limits	MDL	Analysis Date	Analyst	Method
<b>Biological</b> E.Coli(1)	13600	CFU	No Limit Set	0	10/9/2016	JU	1104
<b>Minerals</b> Hardness(1)	12	mg/l	No Limit Set	2	10/10/2016	CC	SM2340C
<b>Nutrient</b> Ammonia as N(1)	1.20	mg/l	No Limit Set	0.1	10/12/2016	CC	SM4500NH3D
Kjeldahl Nitrogen as N(1)	1.13	mg/l	No Limit Set	0.1	10/13/2016	CC	SM4500NH3
NO2 + NO3(1)	0.50	mg/l	No Limit Set	0.25	10/11/2016	CC	SM4500NO3D
Total Nitrogen as N(1)	1.63	mg/l	No Limit Set	0.25	10/17/2016	CC	CALCTN
Total Phosphorus(1)	0.15		No Limit Set	0	10/12/2016	CC	365.2
<b>Organic Compounds</b> Total Oil & Grease(1)	ND	mg/l	No Limit Set	5	10/12/2016	CC	1664A
<b>Oxygen Demand</b> Chemical Oxygen Demand(1)	39.7	mg/l	No Limit Set	2	10/10/2016	CC	410.4
<b>Physical</b> Conductivity(1)	49.8	uS/cm	No Limit Set	0	10/11/2016	CC	120.1
PH(1)	6.80	SPH	No Limit Set	0	10/10/2016	NF	150.1
PH-rain(1)	6.30	SU	No Limit Set	0	10/9/2016	JU	150.1
Temperature(1)	20.1	C	No Limit Set	1	10/9/2016	JU	170.1-C
Total Suspended Solids(1)	22.5	mg/l	No Limit Set	5	10/14/2016	CC	SM2540D
Turbidity(1)	7.32	NTU	No Limit Set	0.05	10/10/2016	NF	180.1

ND = Not Detected  
+ = Out of Range  
MDL = Minimum Detection Level

Results Certified by Northwest Environmental Labs Inc and are NELAP accredited for methods 9215B, 9221D, and ReadyCult coliforms only.

Results are only valid for data sample was taken. We do not accept any liability for use of these results.



General Permit for the Discharge of Stormwater from Small  
Municipal Separate Storm Sewer Systems

Stormwater Monitoring Report Form

91340

PERMITTEE INFORMATION:

Town: City of Bridgeport, Connecticut  
Mailing Address: 205 Bostwick Avenue, Bridgeport, Connecticut 06605  
Contact Person: Jose Diaz Title: Lab Forman Phone: 203-727-4543  
Permit Registration # GSM: 00017

SAMPLING INFORMATION:

Discharge Location (Lat/Long or other description) 1313 Connecticut Avenue (Stratford / Bridgeport) 06 (NEWL: #57242)  
Latitude: 41° 11.031' N Longitude: 73° 09.310' W

Please circle the appropriate area description: ☒ Industrial ☐ Commercial ☐ Residential  
Receiving Water (Name, Basin) Long Island Sound

Time of discharge start: \_\_\_\_\_  
Date/Time Collected: 10/9/16 10:30 AM Water Temperature: 20 C  
Person Collecting Sample: \_\_\_\_\_  
Storm Magnitude (Inches): 0.71 inches Storm Duration (Hours) CD  
Date of Previous Storm Event: 10/10/16

Monitoring Results:

Parameter	Method	Results (Units)	Laboratory
Simple pH	150.1	6.77 SPH	Northwest Environmental Water Labs, Inc
Acid pH	150.1	6.3054	
Turbidity	SM 2340 C	28 mg/l	
Conductivity	120.1	140.2 uS/cm	
Oil & Grease	16.64A	ND mg/l	
DO	410.4	53.6 mg/l	
Clarity	180.1	14.5 NTU	
S	SM 2540 B	5 mg/l	
	365.3	0.34	
Ammonia	SM 4500 NH3 H	ND mg/l	
N	SM 4500 NH3	2.95 mg/l	
NO <sub>3</sub> + NO <sub>2</sub>	SM 4500 NO3 H	0.63 mg/l	
Coli	1104	>200000 CFU	

STATEMENT OF ACKNOWLEDGEMENT:

I certify that the data reported on this document were prepared under my direction or supervision in accordance with MS4 General Permit. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Authorized Official:

Signature: [Signature]

Date: 10-9-16



Northwest Environmental Water Labs, Inc.  
450 Meriden Rd Waterbury, CT 06705  
(203) 437-4110 FAX (203) 725-0501  
LAB# CT-PH-0537 EPA-061  
NELAP accredited quality system NY# 11826

## Report of Analysis

**Name:** Severn Trent Environmental Services, Inc.-East  
PO Box 511  
Attn: Tom Varley  
Bridgeport, CT 06601  
**Sample Date:** 10/9/2016 10:30 AM  
**Receipt Date:** 10/9/2016 11:30 AM  
**Report Date:** 11/10/2016  
**Sample Site:** Connecticut Ave (Stratford/Bridgeport)

**Sample ID#:** 91340  
**Sample Type:** Discharge Water  
**Sample Source:** Bottle 06  
**Sampler:** Jose Diaz Client  
**Approved By:** Chris

Parameter	Sample Result	Units	Limits	MDL	Analysis Date	Analyst	Method
<b>Biological</b> E.Coli(1)	>200000	CFU	No Limit Set	0	10/9/2016	JU	1104
<b>Minerals</b> Hardness(1)	28	mg/l	No Limit Set	2	10/10/2016	CC	SM2340C
<b>Nutrient</b> Ammonia as N(1)	ND	mg/l	No Limit Set	0.1	10/12/2016	CC	SM4500NH3D
Kjeldahl Nitrogen as N(1)	2.95	mg/l	No Limit Set	0.1	10/13/2016	CC	SM4500NH3
NO2 + NO3(1)	0.63	mg/l	No Limit Set	0.25	10/11/2016	CC	SM4500NO3D
Total Nitrogen as N(1)	3.58	mg/l	No Limit Set	0.25	10/17/2016	CC	CALCTN
Total Phosphorus(1)	0.34		No Limit Set	0	10/12/2016	CC	365.2
<b>Organic Compounds</b> Total Oil & Grease(1)	ND	mg/l	No Limit Set	5	10/12/2016	CC	1664A
<b>Oxygen Demand</b> Chemical Oxygen Demand(1)	53.6	mg/l	No Limit Set	2	10/10/2016	CC	410.4
<b>Physical</b> Conductivity(1)	140.2	uS/cm	No Limit Set	0	10/11/2016	CC	120.1
PH(1)	6.77	SPH	No Limit Set	0	10/10/2016	NF	150.1
PH-rain(1)	6.30	SU	No Limit Set	0	10/9/2016	JU	150.1
Temperature(1)	20	C	No Limit Set	1	10/9/2016	JU	170.1-C
Total Suspended Solids(1)	5	mg/l	No Limit Set	5	10/14/2016	CC	SM2540D
Turbidity(1)	14.5	NTU	No Limit Set	0.05	10/10/2016	NF	180.1

ND = Not Detected  
+ = Out of Range  
MDL = Minimum Detection Level

Results Certified by Northwest Environmental Labs Inc and are NELAP accredited for methods 9215B, 9221D, and ReadyCult coliforms only.

Note: The test results are only valid for date sample was taken. We do not accept any liability for use of these results.